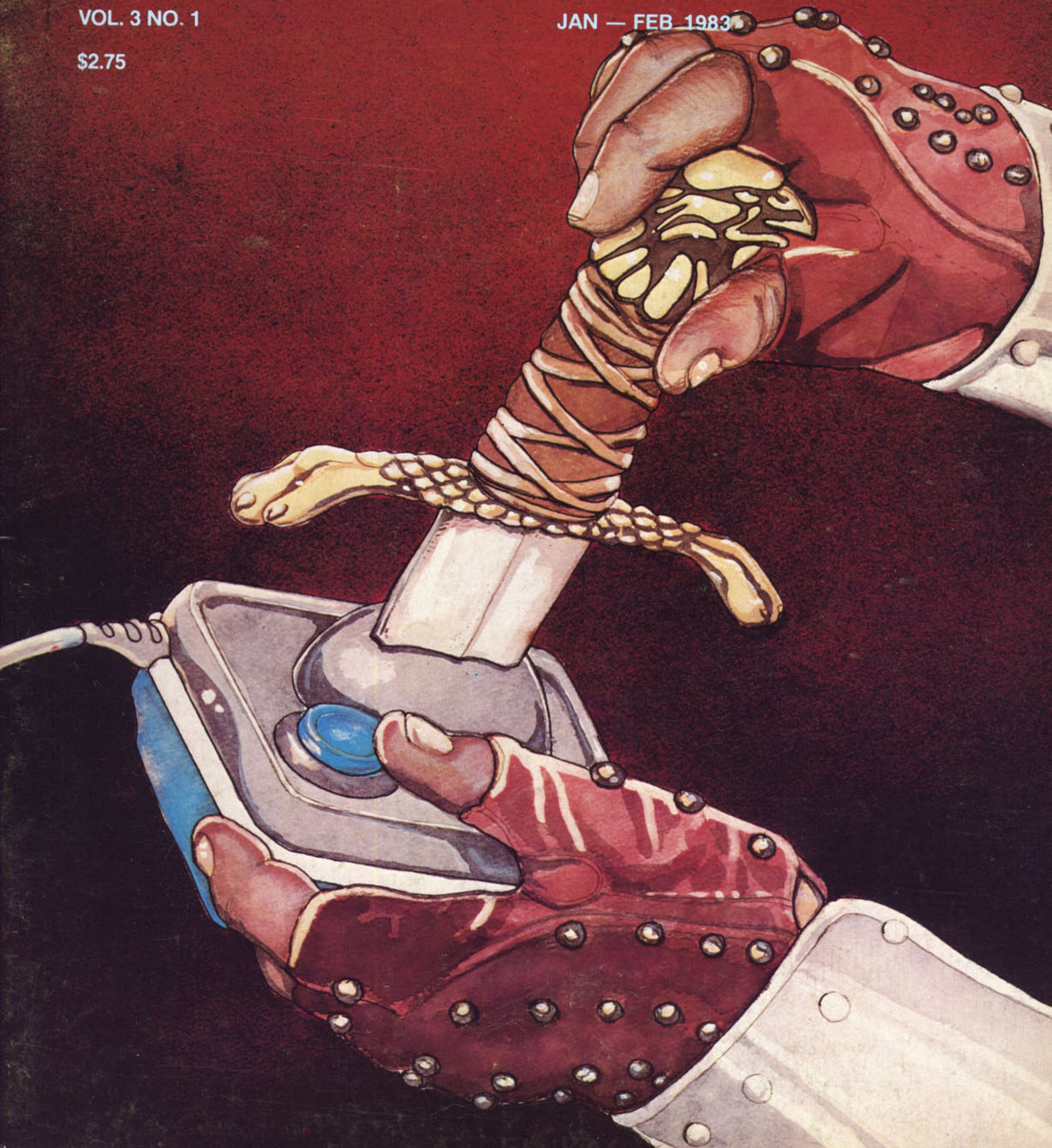
COMPUTER GAMING WORLD

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Menu

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Psalm 9: 1-2

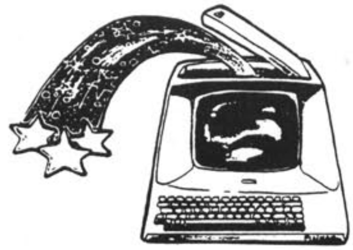
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ADVERTISERS

Features

Department



INSIDE THE INDUSTRY

by Dana Lombardy,
Associate Publisher Game Merchandising

1982 COMPUTER GAME RELEASES

The following extensive list was compiled from a mailing to over 130 different software publishers. Over 80 responded to the survey, of which 76 had game software releases in 1982. The total was 384 *new* game software titles, not including old games translated to work on different personal computers. This works out to about 5 new games per company. Phone follow-up surveys will be done to try and complete the data, but almost every major software publisher is listed here.

This is your chance to participate in selecting the top computer game of 1982. Using this list as a guide, you should vote the *three* (3) titles you feel should be nominated for the final ballot on the *Academy of Adventure Gaming Arts & Design awards* form for 1982. Your three nominations should be sent to: Bill Somers, P.O. Box 656, Wyandotte, MI 48192. Use form provided. Deadline for nominations is March 31, 1983.

Only members of the Academy may vote on the final ballot. If you're interested in joining the Academy, address your inquiries to Bill at the above address. Tell him you read about the Academy in COMPUTER GAMING WORLD.

We'll have a follow-up report after the phone survey, and the list of the publishers who put out the most new titles in 1982. Good gaming!

AE, Broderbund
Abuse, Don't Ask Software
Action Quest, JV Software
Air Raid, APX
Air Traffic Controller, Avant-Garde
Airstrike, English Software
Alien, Southwestern Data
The Alien, Avalon Hill
Alien Blitz, United Microware
Alien Garden, Epyx
Alien Hell, Syncro
Amok, United Microware
Andromeda, Gebelli
Andromeda Conquest, Avalon Hill
Apple Panic, Broderbund
Apventure to Atlantis, Synergistic
Arcade Machine, Broderbund
Armor Assault, Epyx
Astro Chase, First star
Astro Dodge, Digital Marketing
Astroblitz, Creative Software
Astron IV, Syncro
Aztec, Datamost
Bandits, Sirius
Battle for Normandy, SSI
Battle Trek, Voyager Software
Bellhop, Hayden
Beta Fighter, Artworx
Black Hole, Creative Software
Blade of Blackpoole, Sirius
Blingsplatz! Omric
Blockbuster, APX
Bolo, Synergistic
Bomb Alley, SSI
Bomber Attack, Avalon Hill
Bridge 3.0, Artworx Software

Best Home Computer Games of 1982

1. ____________________

2. ____________________

3. ____________________

Mail To: Awards % Bill Somers
Dept. c/P.O. Box 656
Wyandotte, MI 48192

British Heritage Jigsaw Puzzles Vol. 1, Thorn EMI Video
British Heritage Jigsaw Puzzles Vol. 2, Thorn EMI Video
Bug Off!, Adventure International
Bulldog Pinball, Hayden
Cannon Ball Blitz, Sierra On-Line
Canyon Climber, Datasoft
Captain Cosmo, Nexa Corporation
Casino, Datamost
Cc Poker, Spectral Associates
Ccthello, Spectral Associates
Checker King, APX
Chessboard, Futureview
Choplifter, Broderbund Software
Claim Jumper, Synapse
Cloudburst, United Microware
Clowns & Balloons, Datasoft
Color Zap, Spectral Associates
Colorout, Spectral Associates
Compucube, Stoneware
Comput 4 and Reversi, Thorn EMI Video
Computer Baseball Strategy, Avalon Hill
Computer Football, Sirius
Computer Football Strategy, Avalon Hill
Computer Foreign Exchange, Avalon Hill
Computer Phase VII 3.0, Futureview
Computer Stocks & Bonds, Avalon Hill
Congo, Sentient
Controller, Avalon Hill
The Cosmic Blance, SSI
Cosmic Combat, Highlands Computer
County Fair, Datamost
Crazitack, Artworx Software
Crazy Mazey, Datamost
Cribbage, APX
Cricketeer, The Software Farm
CrimeStopper, Hayden
Crisis Mountain, Synergistic
Crypt of the Undead, Epyx
Crystal Caverns, Hayden
The Cube Solution, Muse
Curse of Crowley Manor, Adventure International
Curse of Ra, Epyx
Cyclod, Sirius
Cyclotron, Sensible
Cytron Masters, SSI
Danger in Drindisti, Epyx
The Dark Crystal, Sierra On-Line
Darts, Thorn EMI Video
David's Midnight Magic, Broderbund Software
Dawn Patrol, TSR Hobbies
Deadline, Infocom

Death Race '82, Avant-Garde
Defense, Spectral Associates
Deluxe Invaders, Roklan Corporation
Demon's Forge, Saber
Desert Golf, Spectral Associates
Dnieper River Line, Avalon Hill
Dr. Goodcode's Cavern, Gebelli
Dominoes and Cribbage, Thorn EMI Video
Drac Is Back, Syncro
Dragonlair, Futureview
Draw 5 GT, Computer Kinetics
Draw Poker, Avalon Hill
Duel on a Dead Planet, Futureview
Dueling Digits, Broderbund Software
Dungeon!, TSR Hobiest
Dungeon Duel, C&C Software
Dungeon Master, SuperSoft
Earthquake, Adventure International
Eggs-It, Gebelli Software
Embargo, Gebelli Software
Epidemic!, SSI
Escape From Prison City, Spectral Associates
Escape From Traam, Adventure International
Escape From Vulcan's Isle, Epyx
European Scene Jigsaw Puzzles Vol 1, Thorn EMI Video
European scene jigsaw Puzzles Vol 2, Thorn EMI Video
Fact or Opinion, Learning Well
Fathoms 40, Datasoft
Federation, Avant-Garde
Figure Fun, Thorn EMI Video
Final Conflict, Hayden
Firefly, Muse
Fly Wars, Sirius
Football Predictor, C&C Software
Fore!, Epyx
Forest Fire Two, Artworx
Frazzle, Muse
Free Fall, Sirius
Frontline, Sublogic
Fun 'N' Games, Swifty Software
G.F.S. Sorceress, Avalon Hill
Galactic Blitz, Tronix Publishing
Galactic Gladiators, SSI
Galactic Tactics, Futureview
Galahad and the Holy Grail, APX
Galax Attax, Spectral Associates
Galaxy, Avalon Hill
Game Power For Phonics, Spin-A-Test
Game Show, APX
Gator Beach, Voyager
Genetic Drift, Broderbund

Geography Pac, Spectral Associates
Germany 1985, SSI
Ghost Encounters, JV Software
Giant Space Slug, Futureview
Go, Hayden
Gobblers and Goblins, Artworx
Gold Rush, Sentient
Golden Gloves, Artworx
Golf Challenge, Sierra On-Line
Gorf, Roklan Corporation
Grapple, Insoft
Gridiron Glory, APX
Guadalcanal Campaign, SSI
Guns of Fort Defiance, Avalon Hil
Haunted Hill, Swifty Software
Hazard Run, Artworx
Hickory Dickory Dock/Baa Baa Black Sheep, Thorn EMI Video
High Orbit, Gebelli
Horizon V, Gebelli
Humpty Dumpty/Jack and Jill, Thorn EMI Video
Interstellar Sharks, Edu-Ware
Jawbreaker, Sierra On-Line
Jax-O, APX
Jellyfish, Sirius
Jigsaw, Micro Lab
Journey to the Planets, JV Software
Jumbo Jet Pilot, Thorn EMI Video
Kabul Spy, Sirius
Kamikaze, Hayden
Keys of the Wizard, Spectral Associates
Kickback, Thorn EMI Video
Kid Grid, Tronx Publishing
Killapede, Futureview
King Arthur's Heir, Epyx
Kitchen Sink, Instant Software
Knockout, Avalon Hill
K-Razy Antiks, K-Byte
K-Razy Shoot-Out, K-Byte
K-Star Patrol, K-Byte
Labyrinth, Broderbund
Laser-Ball, Adventure International
Laser Bounce, Hayden
Lazer Maze, Avant-Garde
Lazer Silk, Gebelli
Legionnaire, Avalon Hill
Lemmings, Sirius
Light Cycle, Futureview
Lovers of Strangers, Alpine Software
Lunar Leepers, Sierra On-Line
Mankala, APX
Mar Tesoro, Syncro
Marauder, Sierra On-Line
Marooned Again, Futureview
Mars Cars, Datamost
The Mask of the Sun, Ultrasoft
Matchracer, Gebelli
The Matmoss, Software Technology
Maze of Death, Syncro
Maze Me, Mountain Digital
Medieval Traveler, Futurview
Melt-Down, APX
Microbe: The Anatomical Adventure, Synergistic
Microscopic Journey, Hayden
Microsoft Flight Simulator, Microsoft
Microware, Cavalier
Midas Touch, APX
Miner 2049, Micro Lab
Mines Challenge, Micro Lab
Minotaur, Sirius
Mirv, Level 10/Dakin 5
Missing Ring, Datamost
Mission: Mud, Instant Software
Money Munchers, Datamost
Monster Mash, The Software Farm
Monster Maze, Epyx
Motor Mania, United Microware
Mouskattack, Sierra On-Line
Monte Carlo, Computer Kinetics
Moon Patrol, Avalon Hill
Moonbase Io, Avalon Hill
Mountain Pilot/Precision Approach Radar, Instant Software

Multiploy, Reston Publishing
Mummy's Curse, Highlands Computer
Music Lessons, Swifty Software
Mystrix, Insoft
Nemesis, SuperSoft
Neptune, Gebelli
New World, Epyx
"Night Mission" Pinball, Sublogic
The Nightmare, Epyx
Nightmare Gallery, Synergistic
Norad, Southwestern Data Systems
Nuclear Beehive, Futureview
Nuke'm, Oracle Games
One King, C&C Software
Orbquest, Digital Marketing
Outworld, United Microware
Owari and Bull and Cow, Thorn EMI Video
Pacific Coast Highway, Datasoft
Paint, Reston Publishing
Pathfinder, Gebelli
Peeping Tom, Micro Lab
Pest Patrol, Sierra On-Line
Phaser Fire, Gebelli
Phasor Blast, APX
Photar, Artsci
Phobos, Instant Software
Picnic Paranoia, Synapse
Pie Man, Penguin
Pig Pen, Datamost
Pinball Construction Set, BudgeCo.
Pirates Ahoy, Spectral Associates
Planet Invasion, Spectral Associates
Plattermania, Epyx
Poker Sam, Don't ask
Poker Tourney, Artworx
Pot O' Gold Plus, Rainbow
Pool, Thorn EMI Video
Preppie!, Adventure International
Prism, International Software
Prisoner 2, Edu-Ware
Probe One, Synergistic
Protector II Synapse
Pursuit of the Graf Spee, SSI
Pushky, APX
Pushover, APX
Quadrant 6112, Sensible
Quarxon, APX
Queen of Phobos, Phoenix
Quotrix, Insoft
Rabbotz, APX
Renaissance, United Microware
Rendezvous, Edu-Ware
Ricochet, Epyx
River Rescue, Thorn EMI Video
Roach Hotel, Micro Lab
The Road to Gettysburg, SSI
Road Racer/Bowler, Avalon Hill
Robby, Sublogic
Robot Battle, Softside
Robot Battle, Spectral Associates
Rune Fight!, Software Familiars
Russki Duck, Gebelli
Saga #1, Adventure International
Saga #2, Adventure International
Salmon Run, APX
Sands of Egypt, Datasoft
S.E.U.I.S., SSI
Sea Dragon, Adventure International
Seafox, Broderbund
Serpentine, Broderbund
Seven Card Stud, APX
Shamus, Synapse
Sherwood Forest, Phoenix
Shooting Arcade, Datasoft
Shootout at the OK Galaxy, Avalon Hill
Shuttle Intercept, Hayden
Sidewinder, Tronix Publishing
Skibbereen, United Microware
Sky Rescue, Sublogic
Slime, Synapse
Snack Attack, Datamost
Snake Byte, Sirius
The Snapper, Silicon Valley Systems

Snark Hunt, APX
Snooker and Billiards, Thorn EMI Video
Soccer, Gamma
Soccer, Thorn EMI Video
Solitaire, Futureview
Space Bowl, Gamma
Space Guardian, Omric
Space Pirates (renamed ***Star Pirates***), C&C Software
Space Race, Spectral Associates
Space Rescue, Level 10/Dakin 5
Space Shuttle Simulator, Swift Software
Space Strike, Datamost
Space Vikings, Sublogic
Sparrow Commander, Instant Software
Spectre, Datamost
Spider Raid, Insoft
Spiders of Mars, United Microware
Spook House/Toxic Dumpsite, Adventure International
Spy's Demise, Penguin
Star Blazer, Broderbund
Star Jump, SuperSoft
Star Maze, Sir-tech
Star Pirates (formerly ***Space Pirates***), C&C Software
Starcross, Infocom
Starship Commander, Voyager
Stellar Shuttle, Broderbund
Stone of Sysiphus, Adventure International
Stop the I-A-TOLA, Computer Kinetics
Stratos, Adventure International
Strip Poker Artworx
Stripper, Computer Kinetics
Sub Chase, United Microware
Submarine Commander, Thorn EMI Video
Super Amok, United Microware
Supercubes and Tilt, Thorn EMI Video
Swarm!, Tronix Publishing
Swashbuckler, Datamost
Sword of Fargoal, Epyx

Tank Arkade, Avalon Hill
Tanks & Squads, C&C Software
Tax Dodge, Island Graphics
Telengard, Avalon Hill
Teleport, Cavalier
Terraguard, Creative Software
Terran Jeopardy, Avant-Garde
Tharolian Tunnels, Datamost
Theseus & the Minotaur, TRS Hobbies
Theif, Datamost
Track Attack, Broderbund
Transylvania, Penguin
Trashman, Creative Software
Trivia Trek, Swifty Software
Tubeway, Datamost
Tumble Bugs, Datasoft
Tutti Frutti, Adventure International
Type Attack, Sirius

U-Boat Command, Synergistic
Ultima II, Sierra On-Line
V.C., Avalon Hill
Video Vermin, United Microware
Videomania, Creative Software
Vortex, Datamost
Voyager, Avalon Hill

Wargle, Hayden
Wayout, Sirius
Wizard of Wor, Roklan Corporation
Wizardry: Knight of Diamonds, Sir-tech
Wizardry: Proving Grounds, Sir-tech
Wordmania, Syncro
Wordrace, Don't Ask Software
Wordtrix, Insoft
Wormhole, Futureview

X-Hot Stuff, Computer Kinetics
Yahtcc, Spectral Associates
Yahtman, APX
Zargs, Insoft
Zendar, Sublogic
Zenith, Gebelli
Zero Gravity Pinball, Avant-Garde
Zork III, Infocom

Letters

Dear Editor:

I was pleased to read in your Letters column a letter by Leona Billings about the ethics of piracy. In it she states "If the software publishers ask too high a price, there is a proper (decent, honest, ethical) response: don't buy the item. Publishers will then lower the price if they can or stop making the product if they can't."

I've been saying this for years, and it's nice to see someone agree with me. (And a philosophy teacher at that).

Robert Woodhead
Sir-tech Software

Dear Editor:

I wanted to drop you a short word of praise for the good magazine you have going.

In particular a belated thank you for the review of Wizardry last spring. I had had the game for nearly six months, but could never get anywhere; I kept getting killed! After your article and the encouragement to stick with it that the reviewer included, I went back to the game and eventually succeeded in achieving the final goal, killing Werdna.

What I need now is a review of Knight of Diamnonds that gives a hint or two about the 6th level of the dungeon. . .

Thanks again and keep up the good work

R. David Long
San Jose

ED. — Thank you for asking about hints. It gives me an opportunity to tell you about something we have been thinking about.

We have been kicking around the idea of having a regular "Hints and Tips" column in which we would print hints and tips on a variety of games. The idea would be to have readers send in their hints and/or tips and we would print the best ones (with due credits). Hints would be in slip code. Tips can cover any kind of game. If you or any other readers think this is a Good idea let us know and send in a tip or two. As far as the 6th level of K.O.D. goes — anyone have any hints for Mr. Long?

Dear Editor:

First, let me say how much our family enjoys your magazine. We think it is done in a highly professional and enjoyable manner.

We noted with interest your brief note concerning "Picnic Paranoia" in your Nov.—Dec. magazine. My family has thoroughy enjoyed the game and we've been looking for a review of it to see if others feel the same way. The thing that we like about it is that its totally different from all the other games. When I first bought it I thought only my young children would enjoy it. However, we've found that when teenagers visit the house that's the game they want to play.

I'm hoping that you'll present an in-depth review in your next edition.

Stanford Siegle
Pittsburgh, PA

ED. — See "The Atari Arena" for more information on Picnic Paranoia.





This advertisement has no headline!

Mere words fail to convey the excitement that is truly LEGIONNAIRE.

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Legionnaire					16K					35.00
V.C.	16K	16K	32K		32K					20.00
						32K	48K	40K		25.00
G.F.S. Sorceress		48K	48K		48K					30.00
						48K	48K	40K		35.00
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Shootout at the OK Galaxy	16K	16K	32K	8K	16K					20.00
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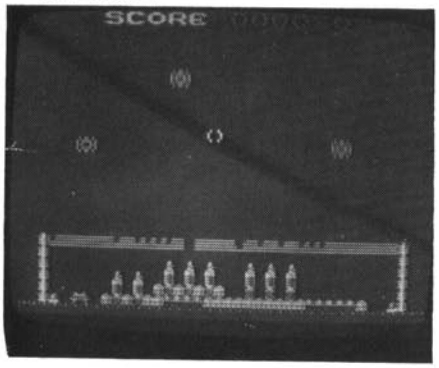
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Taking a peek

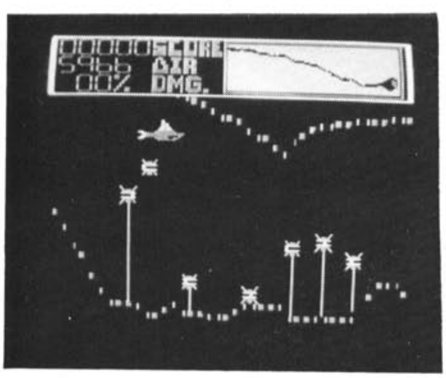
In addition to games mentioned elsewhere in this issue, the following products have been received by CGW. Some of these products will receive more detailed attention in future issues. Readers wishing to review any of these products should contact CGW.

Adventure International
P.O. Box 3435
Longwood, FL 32750
(305) 862-6917

STRATOS: A Mission Command type game for the Atari 400/800 (32K) and TRS-80 computers. Invaders must avoid your Armageddon cannons, bomb the force field to reduce it, and then bomb the city. Meteor showers make your job even more difficult. Good graphics and sound in the Atari version.

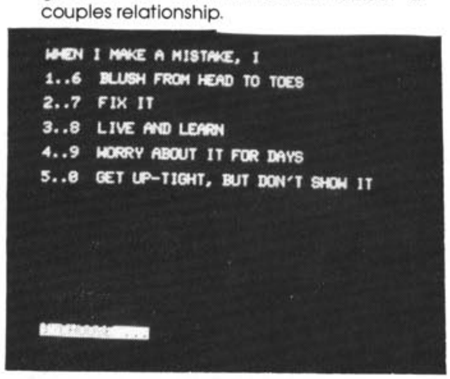


SEADRAGON: You pilot your submarine past sensor released mines in an effort to dive deep and destroy the master mine. The Apple version has a nice talking introduction. Available for the Apple, Atari (great sound), and TRS-80.



Alpine Software
2120 Academy Circle, Suite E
Colorado Springs, CO 80909
(303) 591-9874

LOVERS OR STRANGERS: An Apple program that calls itself "a computer game with a serious side". L&S is a popularized version of a typical personality profile test typically given in counseling sessions (material, career, etc.). The program asks a series of questions related to such areas as love, sex, values, work & money, spirituality. The computer answers each question for themselves and then enters what answer their partners entered (all done in secrecy at this point). After the test is over the program tells the couple in what areas there is significant differences. You can even review the test question by question if you wish. Although not as thorough as a "real" personality profile L&S does provide grounds for communication about a couples relationship.



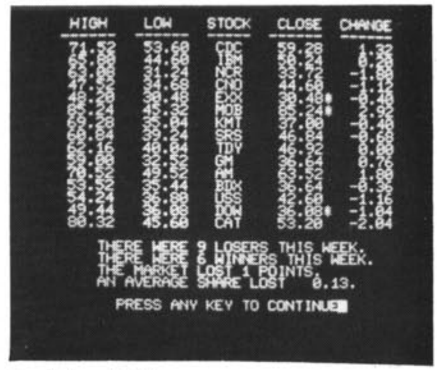
Arisoft
P.O. Box 9184
Whittier, CA 90608
(213) 944-2024

MIKE CARO'S VIDEO POKER: A program that includes two games. The first is Jackpot Video Poker which, according to the documentation, is "functionally identical to popular machines found in casinos, but more sophisticated". The second game is Poker Flurry which is a two person, or one person versus the computer, competitive version of video poker. Players compete in rounds trying to mass the most points by acquiring the best poker hands. Apple II.



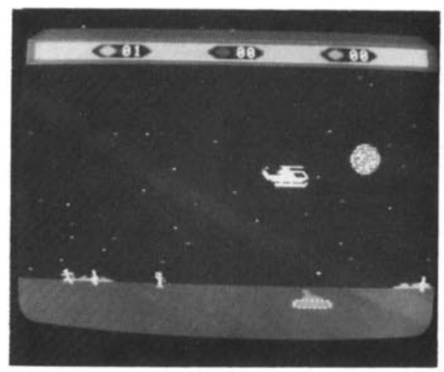
Blue Chip Software
19824 Ventura Blvd., Suite 125
Woodland Hills, CA 91364
(213) 881-8288

MILLIONAIRE: A well done stock market simulation in which the player (its a solo game) manipulates as many as 15 different stocks such as IBM, Exxon, Bendix, etc.. The game allows a number of transaction types (buy, sell, put options, call options, buying on margin, borrowing against net worth, and others. One very nice feature is the ability to have a variety of reports displayed in graphic form. Other stock market programs on the market are games, this one is a simulation. Apple II & III ($79.95): IBM PC, Osborne and other CP/M systems ($99.95).



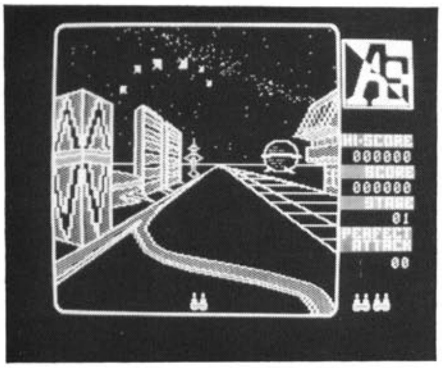
Broderbund Software
1938 Fourth St.
San Rafael, CA 94901
(415) 456-6424

CHOPLIFTER: The popular apple game is now available for the Atari. The graphics are a carbon copy of the Apple version, the sound is better. You are a helicopter pilot rescuing 64 hostages from a hostile government. See the review of Choplifter! in Vol. 2 No. 4 of CGW.



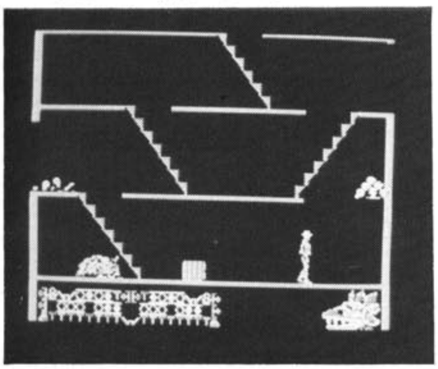
BANK STREET WRITER: Billed as "the first truly home-oriented word processing system". BSW is a very user friendly word processor that includes features found in more expensive and complicated word processing programs. The menus are clear and the commands easy to use. Apple ($69.95).

A.E.: A Space Invaders type arcade game with outstanding graphics. The graphics create the feel of a three dimensional battle between your mobile gun and the invading A.E.s (manta ray like creatures). A different screen is used for each level of play. The A.E.s come in from the horizon circling closer to you, diving behind obstacles, seeking to destroy rather than be destroyed. A nice twist to the Invader type game. Apple II ($34.95).



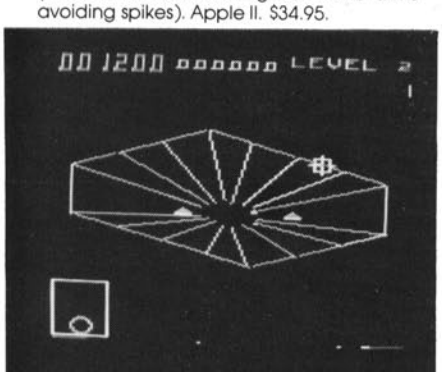
DataMost Inc.
9748 Cozycroft ave.
Chatsworth, CA 91311
(213) 709-1202

AZTEC: AZTEC takes the animated graphics of SWASHBUCKLER and adds to that an adventure game set in a lost Aztec pyramid. A nice attempt at combining hi-res animation/arcade and adventure gaming. The fiction is inspired by Raiders of the Lost Ark. Apple II. $39.95.

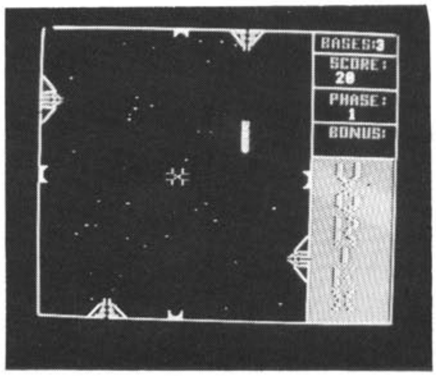


THE ELEMENTARY APPLE (Book): If you are a beginning programmer and find the Applesoft-Tutorial to be less helpful than you would like, take a look at this programming guide. It is user-friendly.

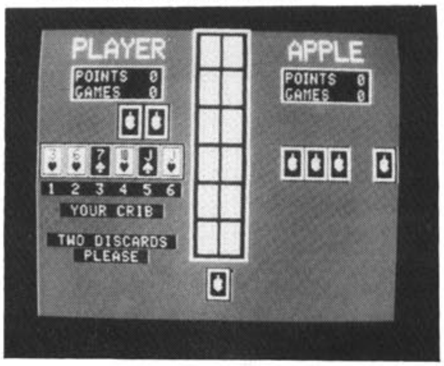
TUBEWAY: Arcade game based on the coin-op game TEMPEST. Tubeway does a pretty good job of giving you the "feel" of Tempest but is not as sophisticated as the coin-op game (but then none of the "copies" are able to be as sophisticated as the coin-op versions). When you complete a round you simply are placed in a new geometric form (there is no accelerating down the arms avoiding spikes). Apple II. $34.95.



VORTEX: An arcade game in which the enemy ships are caught in a gravity well and spiral down towards you. You defend from your base at the center of the gravity well (i.e., the Vortex). Not as good as the other DataMost games listed here.

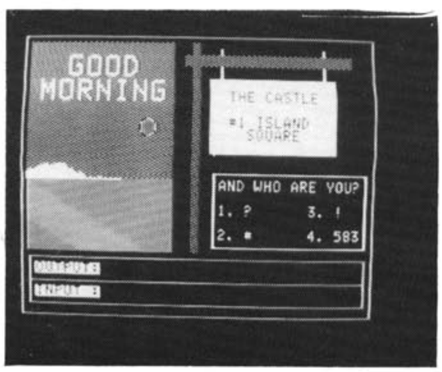


CRIBBAGE SOLITAIRE: Five card games for the Apple II. Original Cribbage, Klondike (Regular and 3 Card), Picture Frame Solitaire, and Pyramid. $34.95.

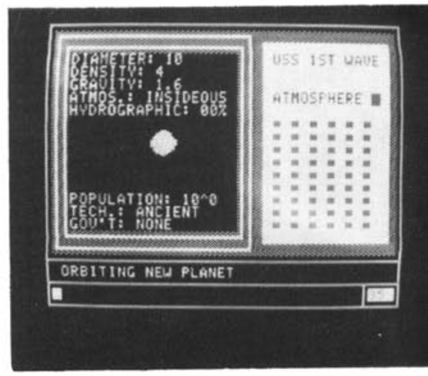


Edu-Ware Services
P.O. Box 22222
Agoura, CA 91301
(213) 706-0661

PRISONER 2: Here is a game not quite like any other. This "science fiction nightmare" is sort of an adventure game, but not really. Well, it is — maybe. Get the picture? If you like mental puzzles this game will be of interest. Prisoner 2 is an improved version of the original PRISONER.



EMPIRE I — WORLD BUILDERS: The first in a trilogy of games which are set in the future, where the rise and fall of an intergalactic civilization is played out. WORLD BUILDERS, the first game in the trilogy, covers the down of the EMPIRE, during the period of colonization. The player takes on the role of either a miner, missionary, or homesteader. Play involves traveling around the galaxy plying your given trade to survive and prosper.



EMPIRE II - INTERSTELLER SHARKS: This is the second game in the EMPIRE trilogy. EII is set at the summit of the Empire's history. You play the role of a pilot, businessperson, or diplomat as you attempt to outfit a spacecraft to take you to the planet Triskelion.



Epyx/Automated Simulations
1043 Kiel Court
Sunnyvale, CA 94086
(408) 745-0700

RESCUE AT RIGEL: VIC-20 version of the game which originally came out for the Apple not long after the Iranian Hostage Crisis. The game plays off that incident with it's theme that a high Tollah has taken ten men and women prisoners and the player must free them. Cassette. 16k expander required.

SWORD OF FARGOAL: A game designed for the VIC-20 (not a translation). SOF is an adventure game in the tradition of other Automated Simulation Adventure game. The player searches a dungeon of darkness in search of the Sword of Fargoal. As you explore the dungeon your character gains experience points and battle skills. Rules are typical of Automated's games, i.e. well done. Cassette.

H.A.L. Labs
4074 Midland Rd. Ste. 23
Riverside, CA 92505
(714) 359-8480

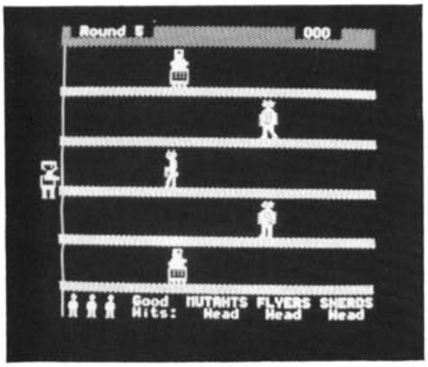
SUPER TAX MAN 2: Remember TAXMAN? This is a new "improved" version. Actually this is a version that looks a little less like PAC-MAN than the older version (by Atari's request no doubt). It still is the personal computer game that comes closest to looking like the popular coin-op game. As with the older version you can play by keyboard. In the new version you can use an Atari joystick if you use a H.A.L. Lab "Gismo" which retails for $15.00 ($10.00 when you use the $5.00 discount coupon included in STM2); compatible software is required to use this hardware arrangement. Apple II.

Hayden Software
600 Suffolk St.
Lowell, MA 01835

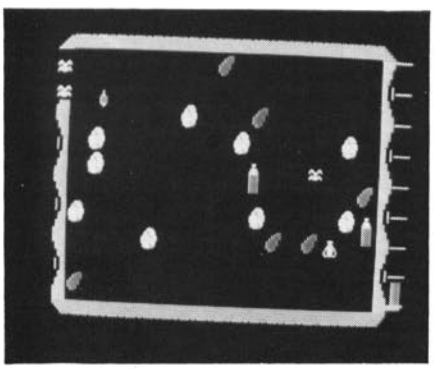
BULLDOG PINBALL: A pinball arcade game for the Atari 400/800. This cassette game has a tilt feature and variable speed control. $29.95.

Insoft, Inc.
10175 S.W. Barbur Blvd., Suite 202B
Portland, OR 97219
(503) 244-4181

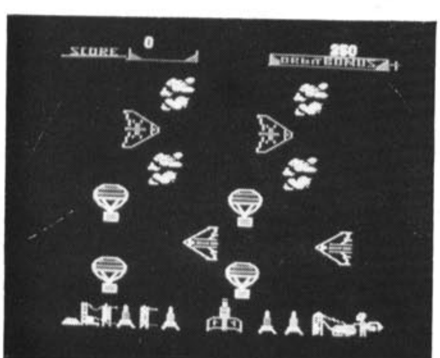
GRAPPLE: One of a series of games written in GraForth (an Apple graphics language). An arcade game in which your android guard must stop a jailbreak by numerous alien types. In early rounds hitting the alien anywhere will be effective. In later rounds you must go for a head shot.



SPIDER RAID: Another GraForth game. You are a spider trying to eat flies while avoiding poisonous beetles (actually insect spray cans).



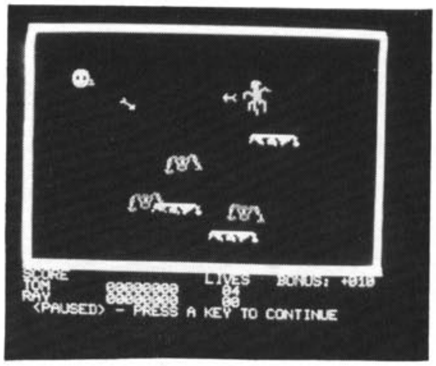
ZARGS: GraForth game which has similarities with FROGGER. You take your ship into space avoiding various other flying objects, dock ith the Zarg base and from there destroy alien ships.



WORDTRIX: A word game for the IBM PC which is similar to the popular game BOGGLE. You find words in a 4-by-4 grid, while competing against the computer. IBM PC 64K.

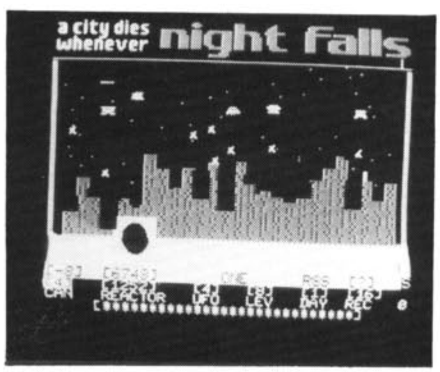
Morningstar
39 Florence St.
San Francisco, CA 94133
(415) 441-2535

ICE DEMONS: An arcade game that is much better than the packaging the game comes in. The game deserves a better presentation. ID can be played solo or in competition or even in team play with a second player. The object of the game is to shoot (with arrows) the ice demons as they come out of the ground. Apple II.



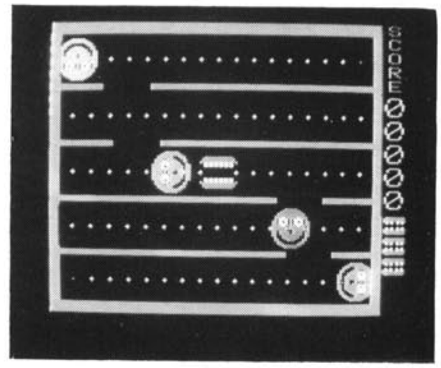
Omega Microware, Inc.
222 S. Riverside Plaza
Chicago, IL 60606
(312) 648-4844

NIGHT FALLS: A Space Invaders type game but with numerous additions that allow a more detailed strategy. Contains a 22 page rule book that explains the various aspects of the game, gives strategy tips, and provides programming information. The program is not copy protected and an uncompiled version of the game is available for modification (the booting copy is a compil ed Applesoft program). Apple II.



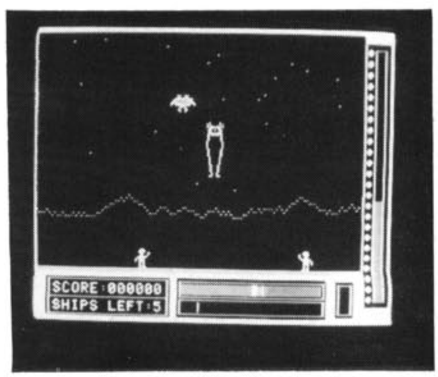
Sierra On-Line
36575 Mudge Rance Rd.
Coarsegold, CA 93614

JAWBREAKER: This is the "All New Version" of an old favorite. In this version the "monsters" (i.e. happy faces) roll along horizontal corridors as you (the dentures) try to eat energizers and then eat the happy faces. If you are caught by a happy face and are not energized you will lose your teeth (just think — the same machine that plays this game can also run detailed tax programs). Apple II.

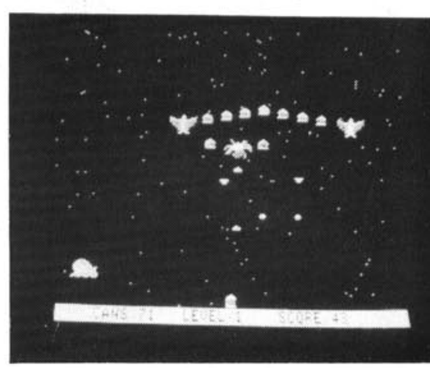


GOLF CHALLENGE: A golf game for one to four golfers/gamers. A joystick is required for each player. You use the joystick to walk your player up to your ball. Joystick is also used to hit the ball. Lining up square to the ball and learning the length of backswing to use are the important skills to develop. Atari 400/800 16K Tape.

LUNAR LEEPER: An arcade game in which you attempt to rescue men from the Lunar Leepers. In the first stage you fly overland picking up men while avoiding the leepers. If you're not careful the leepers will jump up, grab and eat your ship as you fly overhead. In the second stage you negotiate your way underground and try to destroy a giant eyeball (the leader of the leepers?). Your ship has no brake thus you must allow for inertia. Apple II.



PEST PATROL: A well done Space Invader type game. There are 39 levels of play. Each level is made up of a different attack pattern. There is a practice option available which allows you to practice any of the first 29 levels. The last 10 levels can only be reached in the play mode. Apple II.





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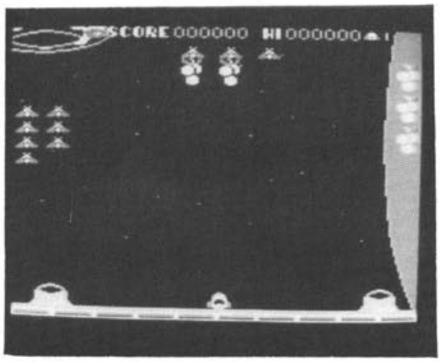
(303) 949–6646
BOX 5480 AVON, CO 81620

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Sacramento, CA 95827

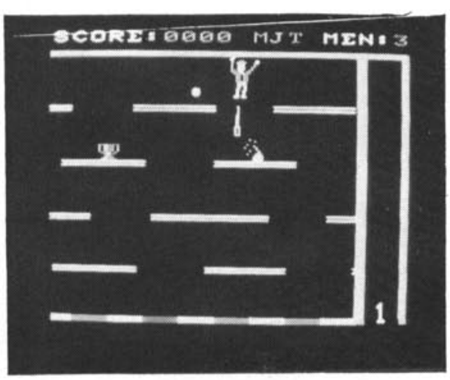
BANDITS: An Atari 400/800 Space Invaders type game. Good graphics. Your job is to guard supplies at a lunar supply base. Alien bandits use a variety of methods to steal the supplies. Some aliens have heat seeking bullets, others have napalm bombs, etc.. There are 28 levels of play.



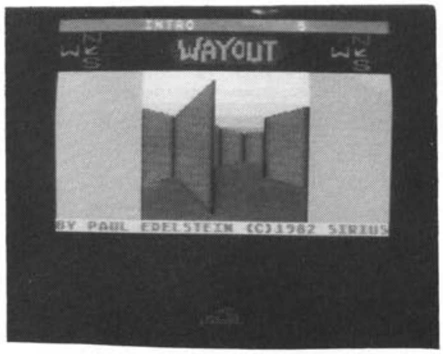
THE BLADE OF BLACKPOOLE: A hi-res adventure game that can handle short sentences (as opposed to two word commands). The object of the adventure is to recover a magical sword and return it to the altar from whence it was stolen. Apple II.



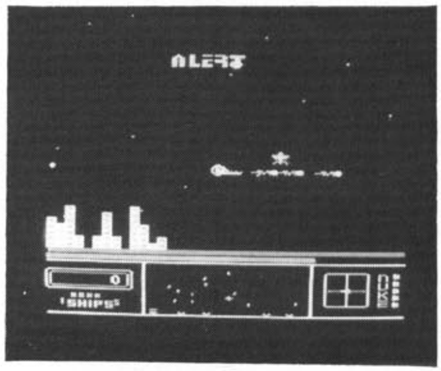
FREE FALL: An arcade game in which you must maneuver your man from the top of the screen to the safety holes at the bottom of the screen. Girders can be held onto and ascending needles must be avoided. Apple II.



WAYOUT: The graphic animation of Wayout is without doubt the most amazing we have ever seen. The Atari version (which we looked at) has walls that appear solid. The walls in the Apple version are line drawings (see cover of game for Apple graphics). Wayout is a perspective 3-D maze game in which you try to escape the maze while avoiding the Cleptangle (a creature which tries to steal your compass and mapmaking tools). Choose from any of 26 mazes. Well done.

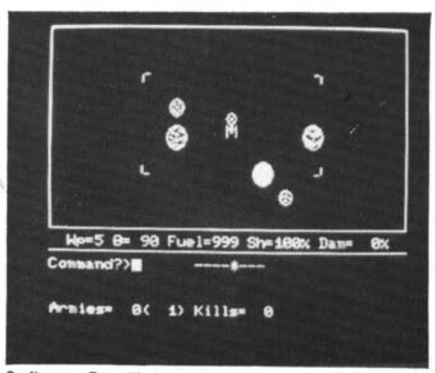


REPTON: A Defender type game in which you defend Repton from invaders. A variety of alien types keeps this game interesting. Available on the Atari 400/800 and Apple II.



Sir-Tech Software, Inc.
6 Main St.
Ogdensburg, NY 13669
(315) 393-6633

GALACTIC ATTACK: A real-time space combat game which combines arcade elements with strategic planning. Using keyboard commands you control speed and direction as you seek to recapture the planets of the solar system from invaders. The primary weapons (torpedoes) and the secondary weapons (phasers) are fired in the direction entered at the keyboard. This game does a good job of combining strategic game elements with pleasing graphics. Apple II.



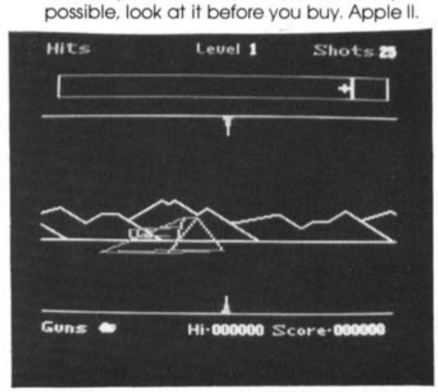
Software Familiars
1065 Brighton Dr.
Menasha, WI 54952

RUNE FIGHT!: RF is a computer aid for RUNEQUEST (a role-playing game by Chaosium Inc.). RF performs almost all the dice rolling and bookkeeping chores related to physical combat in a game of RUNEQUEST. Runs on Apple II 64K ($25.00). A 48K version is supposed to be in the works.



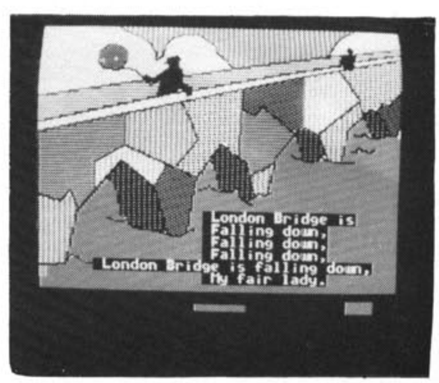
Software By H
P.O. Box 6592
Rochester, MN 55901
(800) 328-9002

PILLBOX: Similar to the coin-op game BATTLEZONE. However PB has no intervening terrain (just the hills in the background). Play involves finding the radar blip of an enemy tank, turning your 360 degree turret to the location, sighting the tank, and shooting it. All this must be done before he fires at you. Your location is stationary. If possible, look at it before you buy. Apple II.



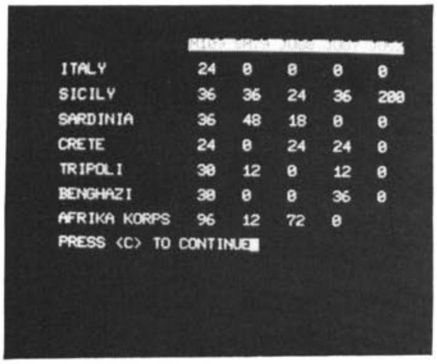
Software Productions, INC.
2357 Southway Dr.
P.O. Box 21341
Columbus, OH 43221
(614) 486-3563

MICRO MOTHER GOOSE: An Apple II product designed for ages 3-9. Program includes nine Mother Goose Rhymes (with music and animation) and three games. Programs are designed so that they can be run by the children. The detailed documentation is for the parents. Package includes several little extras such as Mother Goose stickers and Computer Do's and Don'ts Poster. If you have young ones check this program out.



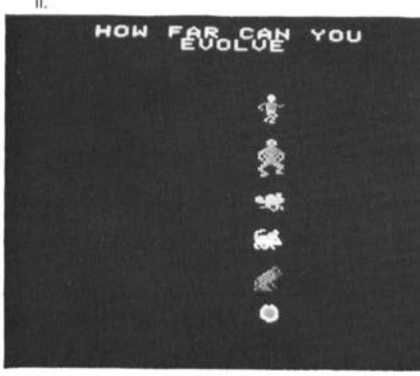
Strategic Simulations, Inc.
465 Fairchild Dr., Suite 108
Mountain View, CA 94043
(415) 964-1353

BOMB ALLEY: A game based on the Mediterranean Campaign in Summer 1942. Written by Gary Grisgby, it uses the same game system as his very popular GUADALCANAL CAMPAIGN. Apple II.



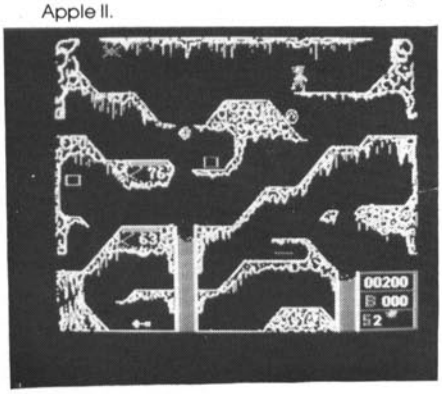
Sydney Development Corp.
600-1385 West 8th Ave.
Vancouver, B.C.
Canada V6H 3V9
(604) 734-8822

EVOLUTION: A game that is really a series of arcade type games linked together by the common theme of evolution. Each phase is a different arcade sequence in which you seek to climb the ladder of evolution. You begin as a single celled amoeba, then work your way successively up through tadpole, rodent, beaver, gorilla, and human. Apple II.

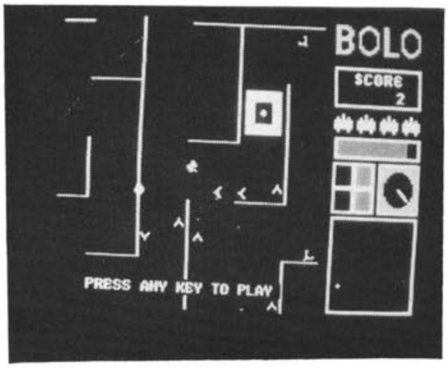


Synergistic Software
830 N. Riverside Dr., Suite 201
Renton, WA 98055
(206) 226-3216

CRISIS MOUNTAIN: An animated adventure/arcade game. Your task is to defuse bombs left by terrorists in mountain caverns. Your time is limited as the bombs are ticking towards detonation. Nine levels of play. Apple II.



BOLO: A tank warfare game based loosely on the tanks of the same name in several works by Keith Laumer. Your task is to use your Mark XXV tank to destroy enemy bases which produce robot tanks. Four levels of difficulty can be combined with any of five levels of maze density to create any of 20 different versions of play. Apple II

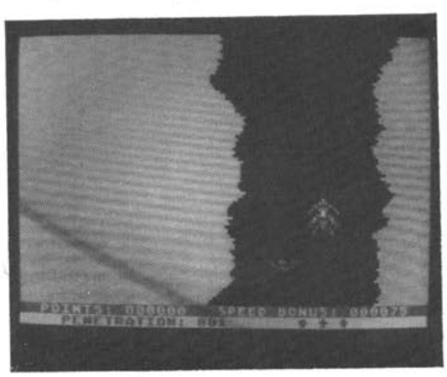


Wadsworth Electronic Publishing
Statler Office Building
20 Park Plaza
Boston, MA 02116
(800) 322-2208

THE SURVIVAL KIT FOR APPLE COMPUTER GAMES (Book): A book that reviews Apple computer games. Twenty-four Apple games are treated (14 of the games can also be run on the Atari, 4 on a TRS-80, and 4 on an IBM-PC). The games are grouped into four categories; Adventure, Arcade-Type, Fantasy, Strategy. $9.95.

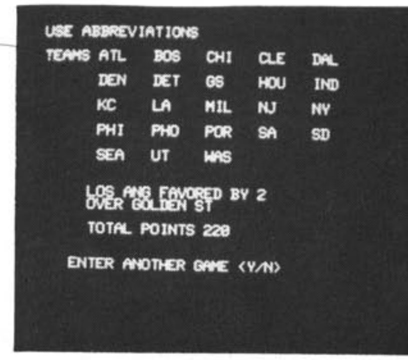
Rantom Microcomputer Software
P.O. Box 5480
Avon, CO 81620
(303) 949-6646

THRAX LAIR: An Atari arcade game in which you control a Pterodactyl type creature on a raid into an underground "Thrax Lair" (insect like creatures) The game, which has nice scrolling and sound effects, runs in 16K but looks better than many Atari arcade games that require more RAM.



Pickam Software
312 South Los Angeles St.
Los Angeles, CA 90013

THE PREDICTOR: A statistical program designed to help predict the outcome of sporting events. Versions exist for Pro Basketball and Pro Football. In the basketball version you must enter the data for 40 games before predictions can be made. You enter teams, points scored, and identify the home team. The Predictor will tell you what the point spread should be for any match-up as well as the total points scored. Documentation goes into details on how to interpret the data the computer gives you. Apple II.



STAR MAZE CONTEST

Wow! It looks like STAR MAZE is tougher than we thought! In our last issue we announced a STAR MAZE contest in which you could win up to $100.00 from Sir-tech software. The first place prize has been won by Roe Adams (he's going to donate the games to Thatcher Montessori School near his home in Hyde Park, Massachusetts). However the second place prize of $75.00 in Sir-tech products and the third prize ($50.00) have yet to be claimed. If you still want to take a shot at it, here again are the rules:

CONTEST RULES

1. Each contestant will submit a map of the 16th level of Sir-Tech's STAR MAZE game. The map should be of sufficient detail so it is clear to the judges that the contestant has indeed gotten to and mapped the 16th level.

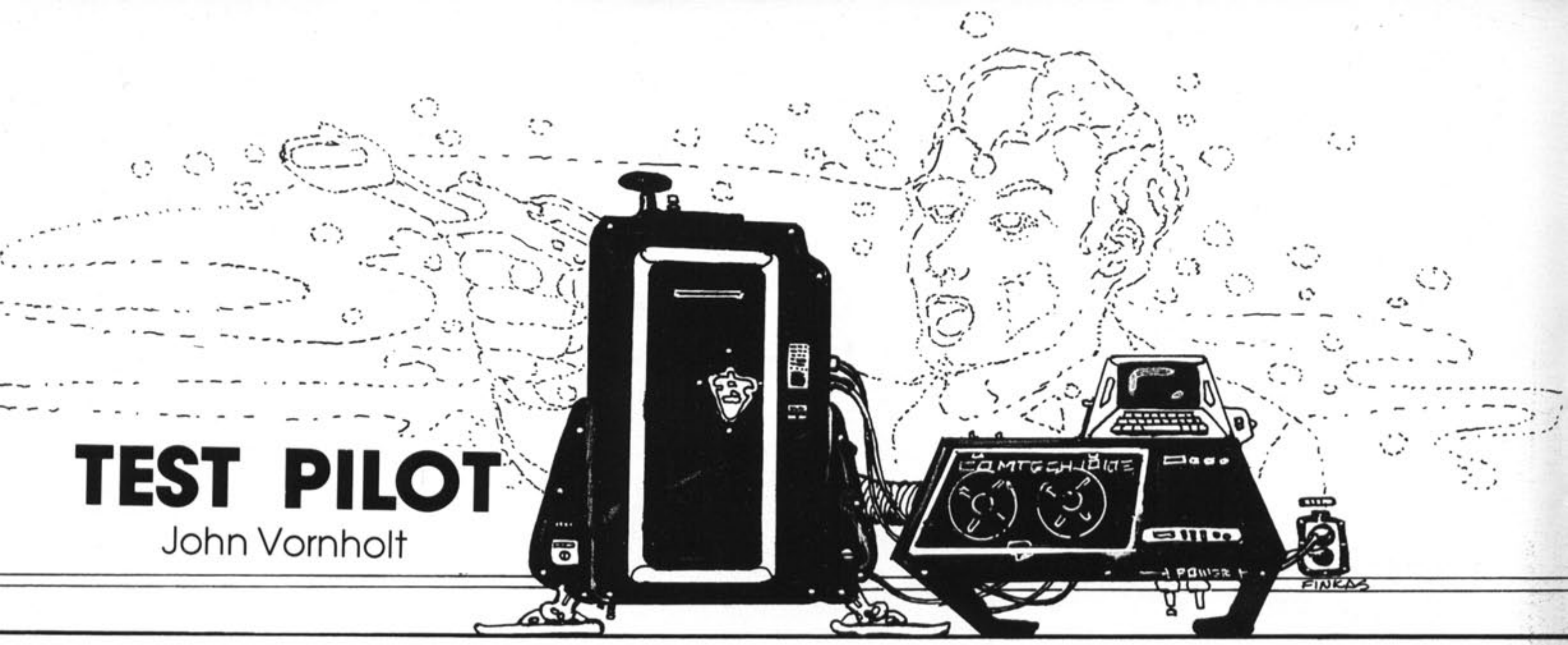
2. Tie-breaker: Some shapes closely associated with the two authors appear on a certain level or levels. What are the shapes and on what level(s) do they appear?

3. Each entry should include your name, address, and phone number.

4. Entries should be postmarked no later than **February 23, 1983**.

5. All correct entries will receive a one year subscription to CGW. To this end, please indicate if you are a current subscriber or not.

6. Second and third place winners (if there are any) will be announced in the March-April 1983 issue of CGW. ■



TEST PILOT

John Vornholt

I fingered the laser blaster. Something about it felt unreal. But there was nothing unreal about the two Garanian warriors who had rounded the slanting pile of rubble in front of me. Had that building once been a tram station or a detention hall? I couldn't remember.

My attention returned to the two Garanians who were, I knew, looking for me. In the cobalt blue of the Lipidus sky, they stood out like two giant brown tree trunks—all and legs. They moved slowly, due more to the heavy atmosphere of Lipidus than to any fear of me. They were easy targets, but I had to suppress my urge to blast them; a shot from my laser might catch a gas pocket, resulting in a huge fireball. I had seen that chain-reaction twice now and had seen it melt both my companions. I didn't want to see it again.

How, then, to get rid of these two gorillas? I tried to think back over everything that I had learned in my two days on Lipidus. The Garanians were strong, much too strong for hand-to-hand combat. Besides, I was outnumbered. I couldn't shoot them, for fear of a fireball. Then it struck me! What good was this damn laser blaster anyway? Not any good that I could fathom. I turned the weapon over in my hand, looking desperately for an over-load switch. I knew it had to have one—every blaster that I had ever seen had had one. Finally, I found a pin on the bottom of the pistol grip. I yanked it out and the damn thing began to hum and vibrate.

All right, I thought, let's hope it has at least a sixty second delay. I set the blaster gingerly on the sidewalk (yes, Lipidus has sidewalks), and back slowly away while counting to myself. At fifteen, I decided to let the Garanians see me. I quickly darted out into the street and pretended to look startled when I saw them. One of the Garanians lifted his weapon to fire at me, but the other knocked his hand away and growled. I ducked back into the alley and they gave chase on foot.

I ran like hell, and it wasn't pretence. Being lighter than the tree-trunk Garanians, I wasn't afraid that they would catch me. But I did know something horrendous was about to happen when the laser reached melt-down. I hoped that I would be far enough away for it not to happen to me.

The sides of the narrow creepy alley shined black, like the skin of a seal. Oblong openings about three feet across lined the slippery walls. It suddenly dawned on me that I didn't know where I was going and, that I might end up in worse trouble than I'd left. At that moment, a tentacle whipped out from one of the openings and slammed me across the face. I went down — hard. The damn thing was curling around my neck before I regained my senses. As I ripped at it with my gloved fingers, I thought, great, out of the frying pan and into the fire.

Somewhere in the recesses of my brain I remembered that the denizens of Lipidus disliked light. I fumbled in my holster for my flashlight (the handiest utensil to have on Lipidus), flipped it on, and drew it out with one quick motion. The monster squealed at the powerful beam and recoiled instantly. I staggered to my feet, leaned against the wall for support, and tried to catch my breath.

Then it happened. There was a soundless sound, and a huge force suddenly sucked me off my feet. The blast came a millisecond later, singeing my face and beard. I looked back down the alley just in time to see a monstrous fireball completely engulf the two frenzied Garanians, turning them into limpid pools. I got to my feet, thinking that was a more dignified position from which to meet my maker. I paused in reflection for a moment, watching the fireball rush towards me like a glowing freight train. not a bad game — not bad at all.

I, of course, died without any pain and found myself back in the chamber. I pushed open the door, and Peterson warmly grabbed my hand.

"Great game, Mitchell!" he shouted. "Great game!"

"Thanks," I mumbled. I was *tired*.

"Forty-nine hours!" Peterson screamed. "Forty-nine hours!"

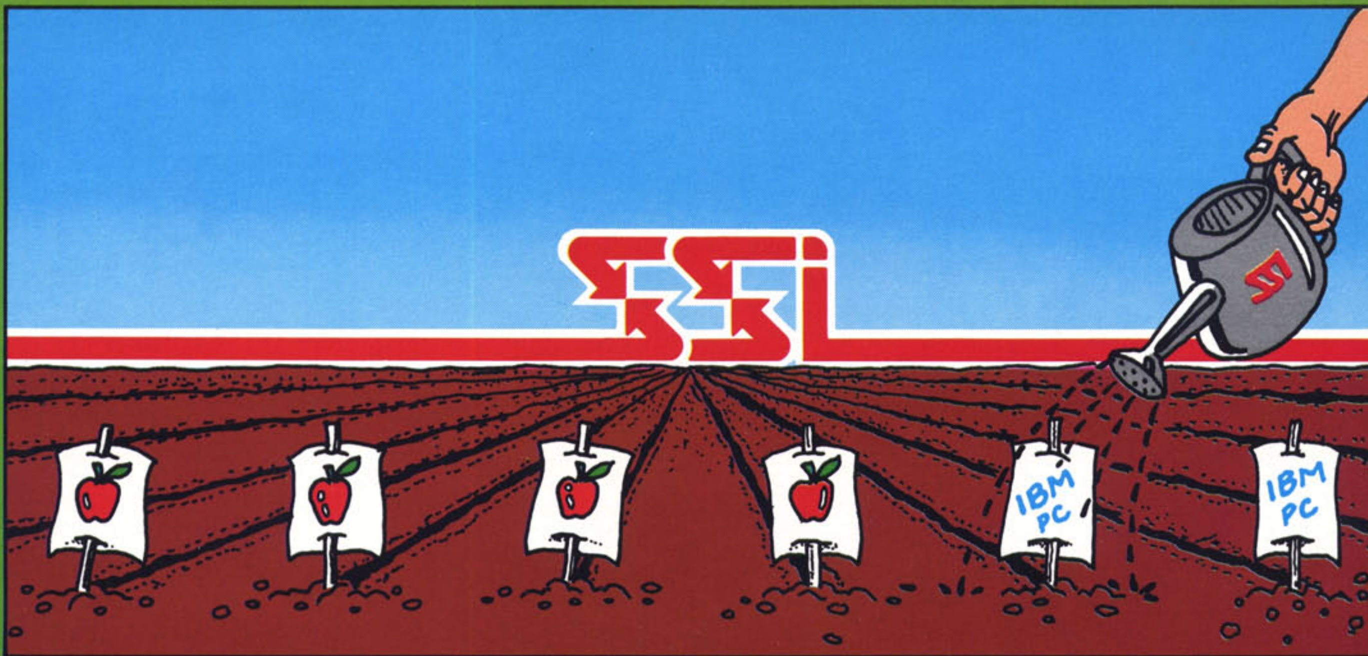
I was beginning to wish he'd shut up, or at least lower his voice. "I've got to sit down," I said, "and get a drink of water."

"Real water?" Peterson smiled.

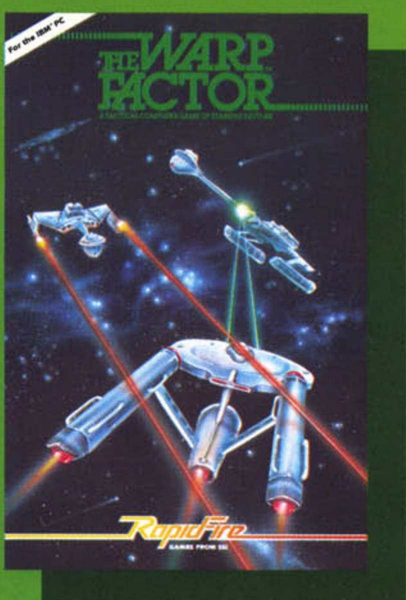
"Please."

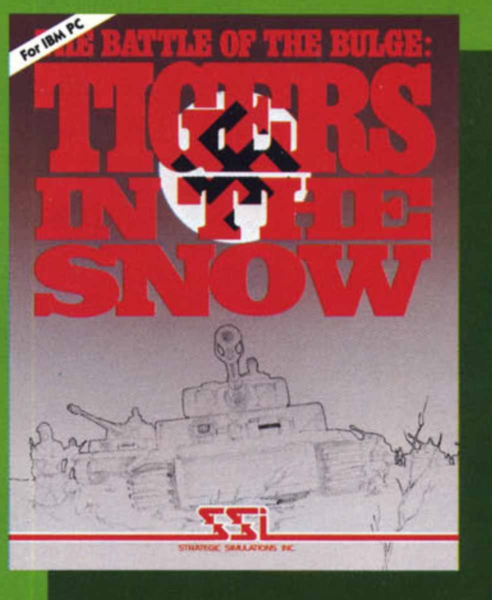
Peterson fetched me a tall cool glass of H_2O. No matter how much they improved the opticals, I mused to myself, they never got anywhere with the savories. Game food and drink was at best, lousy and to be avoided at all cost. I usually didn't bother with it anymore, since training myself to go up to seventy-two hours without food or drink. I still got thirsty sometimes, but never hungry; no

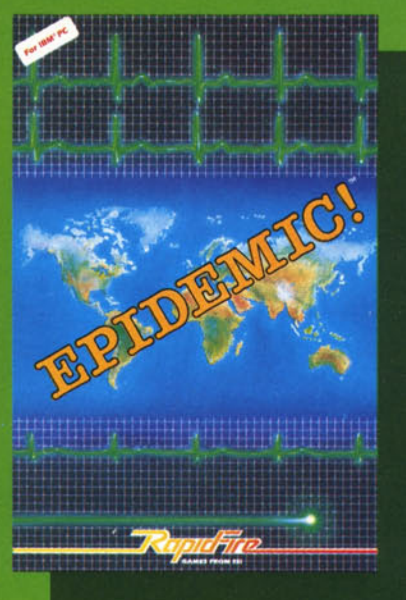
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food was preferable to that pasty protein stuff disguised in the mind as real grub. My body wasn't that easily fooled. Besides, eating and drinking slowed down the play of the game.

Peterson watched me eagerly. "So what did you think?"

"You'll get a full report," I answered between gulps.

"Aw, can't you talk about it a little bit?" he prodded.

I set the glass down and wiped my lips. I knew it was not a truly great game, because I didn't feel emotionally or physically spent, as I did with the truly great ones. That would be in the full written report. On the other hand, there were some nice things I could say about "Lipidus."

"Great opticals," I said. This was no great surprise, as Peterson's company was noted for its visual effects. "The planet and inhabitants were very realistic. And the sensory effects were quite good too. When that damn tentacle, hit me across the face, I thought it had broken my nose. I'll never figure out how you do that with just changes in air pressure."

"The negatives," Peterson said, very seriously. "We know what's right with it. What's wrong with it?"

"To begin with," I asked, "what's the deal with the laser blaster?"

"The laser blaster?"

"Yeah," I replied. "What good is it to have a laser blaster when you can't use the damn thing?"

"All games have laser blasters," Peterson said sheepishly.

I nodded. "That's just the point. You put it in because all the others have it, even though it not only serves no useful purpose, but is downright dangerous to use. It works against other features of the game. If anyone was really going to Lipidus, knowing about the gases there, they would never take an incendiary weapon. A crossbow would be better."

Peterson looked stunned. "A crossbow. . .in a space game?"

"Then invent a new weapon," I said. "I'm only a test pilot. My job is to play 'em and spot the flaws — I don't design them. But that laser blaster never felt right to me. I think whoever designed it, knew it belonged in another game; not this one."

Peterson was thin-lipped. "I designed it myself."

"Well," I muttered, "I had fun blowing it up." I stood and stretched, ready to call it a day — or should I say — two days.

"You didn't like the game at all, did you?" Peterson asked gravely.

"You'll get my full report," I yawned.

Peterson's eyes narrowed behind his horn-rimmed glasses. "I'm ruined with the company if that game doesn't pass," he said.

I yawned again, mumbling, "That's not my decision."

"It can be, depending on what kind of report you turn in."

I was getting irritated now and turned toward the engineer with a weary frown. "Look, Peterson, if you. . ." It was then I noticed the needle gun in his hand.

"Get back into the hologram chamber," he commanded.

"What?"

He waved the Ngun pointing it toward the chamber. "Get back in. You're going to try it again."

I tried to summon some authority to my voice. "You can't do this, Peterson. Besides, playing the game again won't make me change my mind. It's not a bad game, and I was never going to give it a bad report."

But the crazed software engineer wasn't listening. "Back into the chamber," he hissed.

As Peterson's gun hand was shaking rather badly, I decided not to test him. Re-entering the holo-chamber, I already had my strategy worked out. Peterson couldn't stay awake as long as I could — nobody could — and I would simply manage to get myself killed every now and then on the chance of finding him napping or out of the testing room. The worst he could do to me while I was in the chamber was to restart the game.

I watched him fumbling with a cartridge in the game slot, then the door closed.

The first few seconds in a holo-chamber were always strange. The walls, ceiling, and floor were a combination screen projector made up of millions of tiny glistening refractor chips — it was like the walls were covered with sequins. Then, colors began to emerge, blending and folding in with one another like an old-fashioned kaleidoscope. The walls melted away, the colors becoming definite hues, and shapes to take distinct form. I expected a laser blaster to appear in my hand, as my spaceship hurtled out of control toward the planet Lipidus. Instead, I found myself in. . .

A cocktail party!

Yes, indeed. Some very hip synthesized music was blaring from the floor, and twenty or thirty cool people were milling around with drinks in their hands. I looked down at my own hand and saw some tall orangish concoction, with a little pink umbrella sticking out the top of it. I also seemed to be dressed better than usual, in a blazer of some purplish color. While still taking in the surroundings, a beautiful — almost impossibly beautiful — blond strode up to me and stopped two inches from my chest. At least her most forward aspects stopped there — the rest of her stopped some distance back.

"Hello," she said.



All right, I said to myself, I'm in some kind of erotic adventure. I didn't know how Peterson had gotten the cartridges switched, or even if he was aware of it, but I knew my plan was out the window. It's very difficult to get yourself killed in an erotic adventure. Practically anything else, though, was possible.

"You're shy," smiled the beautiful blond. Of course, she had been programmed to say that to anyone who didn't talk very much.

I ignored her and just kept on thinking. My experience in these kinds of games was limited; I usually found myself avoiding monsters and peculiar aliens. I didn't know who tested erotic adventures, but it certainly wasn't me. I suspected it was the president of the company.

I studied the girl. She must have been given a fairly complex artificial intelligence, I decided, in order to hold a conversation with a complete stranger. Maybe if I asked the right questions, she could help me get out of this jam.

"What's your name?" she cooed.

"Mitchell," I said. "What's yours?"

"Alice."

Funny, she didn't look like an Alice. More like an Inga.

"How do I exit this game?" I asked her.

"Exit?" she smiled. "But you only just got here." She batted her eyelashes and gently touched my chest.

"But it's important I leave now," I answered. "I have a phone call to make, then I'll come right back."

"It can wait, I'm sure," purred Alice. She suddenly grabbed my free hand and began swaying to the music. "Let's dance!"

"No!" I shouted. I grabbed the vacuous blond and shook her violently. "I want to get out of here, understand?"

A look of understanding did come into Alice's eyes. "Maybe you'd like to meet my roommate, Marsha. Or my other roommate, Trisha. She's a airline stewardess."

I swore under my breath.

"If that doesn't suit you," Alice continued, "there's my hairdresser friend, Felipe."

"Excuse me," I said, walking away.

I got about eight steps before a sultry brunette grabbed my arm. "Got a light?" she asked, waving what looked like a hand rolled cigarette marijuana joint in my face.

I started to say no, then I realized that my purple jacket probably came equipped with a few choice utensils. I reached in and drew out several objects: one was a set of keys to God-only-knows-what, another was a small vial of white powder and a third was a gold-plated lighter. I lit her funny cigarete.

"You don't like it here, do you?" she asked.

I declined her offer of the pot. "No. I'm looking for a way to get out."

"My apartment is only a few blocks from here. My car is right out front."

So is mine probably, I thought to myself. "Who knows how to exit from the game?" I asked.

She pointed toward a large man with a completely bald head. "That's Hubert. This is his place and his party. He knows everything."

I strode over to Hubert. "Hello, Hubert," I said.

"Hello, Mitchell," he replied. "Glad to see you could make it."

At first, I was stunned that he knew my name, then I realized that I had told it to the blond. By now, everybody in the place knew my name.

"How do you exit the game?" I asked

"Don't you like it here?" Hubert asked smugly. "Everybody finds my parties so. . .interesting."

"Interesting is not what I'm looking for right now," I answered. "I'm tired, and I want to go home."

"Go home then. You live just down the street."

"Home, Hubert. My real home. How do I exit the game?"

Somebody passed Hubert a joint, and he took a long drag. "you automatically have that option after an encounter."

"I want to go now," I repeated, emphasizing the "now."

"Out of the question," Hubert replied with a toss of his head. He gave me a very fruity grin.

I hadn't been playing action-adventure games as a living for six years for nothing. I merely picked up a bar stool and smashed it across Hubert's idiotic face.

Hubert lay on the floor in a pool of real-looking blood. It suddenly dawned on me that a little sado-masochism might be written into this game, and I wasn't wrong. Two musclemen-types quickly came at me. One I dispatched with a whiskey bottle, but the other one landed a left hook to the side of my face. My ears buzzing, I rammed him in the gut with my head, then dropped him with a knee well below the belt. Gee, this game was sort of fun.

There were no other takers. In fact, everyone froze as a voice came from the stereo, saying, "If you wish to continue the game, please be seated. If not, please remain where you presently are."

I remained standing. Apparently, beating somebody to a pulp, in this game, was the same as an erotic encounter.

Within a few seconds, the walls around me began to dissolve, and the curvacious blonds and brunettes became, once more, mere refracted light beams. Gingerly, I pushed open the door of the chamber and stepped out.

Peterson's back was toward me, and he was immersed in watching figures dance across a computer video screen. Apparently, in his madness, he thought I really would play his silly game all over again. And just as certainly, he must not have known about the switch of cartridges.

The gun lay beside him, on top of an oscilloscope.

In two bounds, I was across the room and had the pipsqueak programmer by the throat. He scrambled for the gun, but I was able to drag him out of his chair and half-way across the floor. It was then that Peterson surprised me with a swift bony elbow to my ribs. I doubled over and just managed to catch him by the scuff of the neck, as he hurried back toward the gun. They say that mad men have the strength of ten, and I was beginning to believe it. Peterson and I thrashed about on the floor for awhile until I realized that he was more than I could handle. While still able I maneuvered him to the door of the hologram chamber, kicked it open, and hurled both of us inside.

I pinned him to the floor as the door slowly shut. Closing the door activated the game, and the door would remain shut and locked until the game was over. This wasn't for the player's sake, but to avoid damaging the circuits.

Peterson jumped to his feet and threw himself against the door, howling like one of his Garanians.

"Calm down," I said. "You know you can't get the door opened. Sit back and enjoy the game."

"We'll be out of here in a second," Peterson snarled, "Lipidus is a single-player game, and it won't activate with two people."

Just then, the walls began to melt away into a lovely magenta haze. Something had told me that Hubert's Party was a multi-player "game". "What were you saying?" I asked.

Peterson shrank to the floor, watching with utter horror as the chamber was transformed into Hubert's chic livingroom. The guests strolled past us, tinkling the ice in their cocktail glasses.

"Where *are* we?" Peterson gasped.

"Lipidus," I smiled. "Don't you recognize it? This is a great game you invented, Peterson. I especially like hors d'oeuvres."

A tall willowy redhead began to hover near us, as if deciding how to approach these two weirdos, one of whom was cringing on the floor.

"Hi, Sweetheart!" I piped up. "I want you to meet a friend of mine. His name is Peterson, and he's a load of laughs."

"Hi, Peterson," she cooed. "I'm Trisha."

"I think I know your roommate," I said. "Blond girl, right?"

"Alice," beamed Trisha. "Shall I get her for you?"

"No, you take care of my friend here. I'll go find Alice." As I moved off, I could hear Peterson whimpering in the background.

I pretty much ignored him after that. I made a bee-line toward the luscious Alice, dragged her straight away and found a much easier way to exit the game than I'd had the last time through.

Two security guards were waiting outside the hologram chamber with me when Peterson finally exited. He was quiet, almost docile, and I remembered him saying, as they led him away: "I guess that you really don't have to have a laser pistol."

I yawned and grabbed my old windbreaker from the coat rack. Any more days like this, I thought to myself, and I might have to look for another line of work. ■



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THE TWISTS AND TURNS OF SERPENTINE

By Michael Cranford

BASIC INFORMATION

NAME:	Serpentine
TYPE:	Arcade
SYSTEM:	Apple II or Apple II+ (48K)
FORMAT:	Diskette (DOS 3.2 or 3.3)
# PLAYERS:	1
AUTHOR:	David Snider
PRICE:	$29.95
PUBLISHER:	Broderbund Software 1938 Fourth St. San Rafael, CA 94901

Broderbund has earned a level of distinction for the quality of its past software, a recent example being **CHOPLIFTER**, which has done whirlwind sales at the computer stores. But, an even newer game, SERPENTINE, is an arcade game of exceptional appearance who's maze-routine graphics are much better than most games on the market.

At the start of the game, you command three tame blue serpents. Your objective is to rid the maze of the enemy serpents while laying eggs in hope that, when you vanquish your Ist foe, you will get a new serpent. Each level (maze) starts off with three orange serpents, who strive to eat you while laying young of their own. The gist of the game is that big serpents eat little serpents. You start off with three body-segments, and your foes with six or seven, so you must chase them from behind and swallow them up until they're smaller than you, at which time they change color to green. You may then eat them from the front, which will make you one body-segment longer. Eating enemy eggs will also gain you a segment. Eating frogs, which hop around in search of eggs, are also good for an extra length. But beware. . .enemy serpents can grow a segment by eating frogs or your eggs too, though no serpent can grow longer than seven lengths. Neither can it be less than two (head and tail), otherwise it will die.

All serpents lay eggs. Upon doing so, they lose a segment of length. Your foes eggs are speckled, and will eventually hatch into new serpents (though there will never be more than three on the screen at once). The newly-hatched snakes are only two segments in length.

The game tends to be based on foresight and dexterity, rather than the memorizing of patterns which can be used with so many conventional maze games. The serpents grow deadlier as one ascends the various levels, in that they move faster and faster and become more accurate in tracking your blue snake. There are a total of twenty separate levels (all of which are stored initially in memory. . .there is no disk-drive action during the game). After reaching the twentieth level it returns to the first maze. . . though the game certainly does not return to level one difficulty! After one masters the upper levels (17 and on), the game does not get noticeably harder, but it's so easy to make an error that I believe SERPENTINE Is not a game that one can sit at all day without a loss, no matter how great his gaming expertise.

To pave the way for future gamers, I offer some insights and strategies:

1. On the first level try to chew down all the serpents a bit, then aim for frogs to gain length. . Eating green snakes from the front are worth a goodly number of points.
2. Don't drop your egg on a path in the maze that is on the edge, otherwise a frog may enter the maze and eat it before you can recover.
3. Don't kill the last enemy serpent before you've hatched a new egg.
4. When starting a new level with an old serpent, you tend to move slower than if you die and start again with a brand new serpent.
5. Strive always to keep your blue snake a minimum of three segments in length.
6. Cutting into an enemy snake just after his head has passed will cut him off at that point.

A good score would certainly be anything over 100,000 points, but in SERPENTINE it is possible to sit on one level for a long time and accumulate an impressive score with little accomplishment. Measure yourself instead against the highest level you can achieve. I've made it to 31. . .

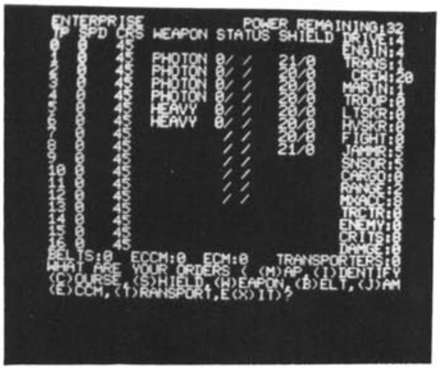
The author, David Snider, is more notably responsible for his pinball game, **DAVID'S MIDNIGHT MAGIC.** I spoke with him and learned that he was working on converting MAGIC to the Atari, and then would start on SERPENTINE. After commending him on the originality of SERPENTINE, he told me, "I was trying to capture the best parts of Pac-Man and Centipede in an entirely new way." In my opinion, SERPENTINE Is far better than the sum of its inspirations. ■


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COSMIC BALANCE: Review and Analysis



David Long



BASIC INFORMATION

NAME:	**Cosmic Balance**
TYPE:	**Tactical Space Combat**
SYSTEM:	**Apple II and Atari 400/800**
FORMAT:	**Disk**
# PLAYERS:	**1 or 2**
AUTHOR:	**Paul Murray**
PRICE:	**$39.95**
PUBLISHER:	**Strategic Simulations**

INTRODUCTION

When I bought my Apple two years ago, the very first game I bought for it was Paul Murray's WARP FACTOR. I took an *Alliance* starship named Enterprise against a *Klargon* opponent, and was quickly blown away!! "No fair," claimed I, "that Klargon had me outgunned!" Well, Commander, now you have no more excuses. The long awaited "sequal" to Warp Factor, *Cosmic Balance (CB)*, is out.

Actually, *CB* goes far beyond being a mere squel to *Warp Factor (WF)*. One of my biggest disappointments with *WF* was the lack of animated graphics. I wanted to see my ships fire their phasers, torps, and disrupters, and to see the enemy explode. Well, they still won't explode before your very eyes, but the execution phase does give an excellent simultaneous movement display with a blow by blow and verbal graphic attack damage readout. This, combined with an extremely flexible shipyard (build to your own design) section and just about the most detailed status display that a Starfleet Commander could ask for, makes this one space battle game that should keep you playing for quite a while.

Six different technology levels are reflected in this game design, allowing you to vary the impact of electronic warfare on the battle, or to create mismatches between "sophisticated" and "primitive" starfleets. A Tech Level six dreadnought can, with your proper command, defeat two or even three enemy ships of equal size, but lower technology.

Four levels of solitaire play are presented, and I'd suggest that you start at the easiest, level four. You'll then have a choice of six different scenarios; five of which can be given an infinite variety of participants.

THE SCENARIOS

Scenario One, the *Deepspace Encounter*, is the only scenario with both sides fixed. The Enterprise, presumably on her five year mission to explore strange new worlds and boldly go where no man has gone before, finds that someone, or somethings, has indeed come before. The Reliant (a loose translation of the unpronounceable true name), crewed by the alien Brotherhood and sworn to destroy all humanoid life, attacks and fights to the death.

Other scenarios presented are *Planetary Raid, Commerce Raider, Invasion, Dogfight,* and *Ambush*. The first three are samples of many typical combat actions that will arise in an upcoming strategic space conquest game which will use the *CB* system to resolve battles. You can destroy a planet, raid a convoy, or invade and conquer a planet, depending on what else you have going on any particular evening. The first two have a time limit of ten turns, which should make you hustle!

Dogfight is the obvious confrontation between from one to four opposing starships. You can test your designs against each other with this kill or die scenario. The cleanest of the options, this one should be chosen for practice.

The last choice is Ambush, which again pits from one to four ships against from one to four opponents. The difference between this and Dogifight is that here you select the first team, and the computer randomly selects the second team from ten pre-constructed dreadnoughts on the same disc. Some of them are very tough, so be careful!

THE SHIPYARDS

Designing a ship is an uncomplicated process, so don't let the thought scare you. After all, you don't *really* have to fly it into combat. First you have to select the tech level and size of your ship, and are then presented with a *Design Display*. The Design Display gives you the total amount of space in your ship, and you can select from among a wide variety of weapons and auxiliary equipment to fill that space. The game rules do tell you how much

space each of the many options will use, but it's probably easier to just play with the display until it looks the way you want it, and then hope that you can win with it.

Perhaps the simplest weapon to use, and the most tempting to include lots of, is the *fighter squadron*. It flies 32 mk per turn towards its target, attacks every turn from then until destroyed, and will score a lot of hit points on the enemy. Unfortunately, it is also extremely costly in terms of space so that a dreadnought, with four fighter squadrons, may have room for very little else.

Other optional equipment includes both *heavy* and *light seekers* (drones), *tractor beams, heavy armor platings, marines* and *transporters* (rather important if you're playing the Invasion scenario), *defensive belt satellites*, and, of course, a wide variety of weapons.

Ships have room for up to 12 weapons, and each can select from eight different covered arcs of fire. If you want a weapon to fire in all eight directions, fine, but it takes up space. There are *light, heavy,* and *siege phasers, disrupters, photon torpedoes,* and *plasma torpedoes*. Your only limitation is a maximum number of weapons which may fire out of each covered arc, and this varies with the size of your ship.

The last thing you will normally deal with in the Shipyard section is your shields. These should be as strong as you can possibly make them.

When you get everything so you are satisfied, save the ship, and go on to the next. Don't plan to combine ships with the same first letter on the same team (you can't) but otherwise, just about anything goes. Play with this section and the Dogfight scenario, and the only limit is your imagination.

THE COSMIC BATTLE

After selecting your scenario, and if necessary, your ships, you will move to the orders phase. The status display can be viewed for any of your ships, and the map size varied to include all combatants on the same screen.

Perhaps the most dramatic improvement in the game itself is the fantastic increase in speed. In most cases, the mere touch of a key will give instananeous results. You can charge and fire each of your weapons individually or in group, can charge individually any one of your eight screens, and vary course and or speed on any of the 16 timepoints that compose the turn. (As in Warp Factor, the order to fire can be given on a specific time point, at a specific range, or at the last instant, which basically calls for the computer to take its best shot.)

Another change from *WF*, is that *CB* allows you to enter your course, and then go back to the map and advance it one time point at a time, if you desire, to see the ship's projected position throughout the turn. This is an excellent way to allow you to calculate your ship's position to set as close as possible to the enemy before firing, and to avoid inadverlant fire in mid-turn caused by his evasive tactics.

Shields, too, are more realistic in CB than they were in WF. All true outer space battle fans can envision a strained voice in a deep Scottish brogue complaining, "Captain, the shields are buckling, one more blast like that and they'll blow!!" Well, now the shield will buckle, and you'll suffer damage (perhaps), but you'll still be able to reinforce them, and even drain other shields for power, until all your shield batteries are destroyed.

After you have given all your ships all of their orders, you enter the execution phase, so-called because if you have designed your ship poorly, the enemy will execute you. This is where I was really stunned by the speed of this program. I entered my last command, pressed return, and started to go get another beer. There wasn't time. Total lag time between the completion of my orders and the beginning of action has to be measured in tenths of a second. Coming after two years of at least five minutes per turn wait for Warp Factor, this speed is quite impressive. It's also dangerous. The tendency is to try to play just as rapidly as the computer does but, if you do, you'll lose, and lose quickly.

SUGGESTIONS

In designing your ships, be sure to give them a range factor of at least one. This will enable you to use those prototypes in the strategic game to come, and will also keep them somewhat in line with the last surprise ships in the Ambush scenario. The first ships that I designed had no range factors at all, which does make them very strong, but also immobile on a scale of light years.

Another point is that a ship with a speed over 50 is virtually unhittable by known weapons systems. Accordingly, the Risellian Pact of 2438 outlawed all starships with a speed of faster than Mk 30. So, unless you wish to be a war criminal, keep your speeds in line.

Some far-fluns starship designers, specifically from the northwestern sector of our galaxy, have reported the creation of "monster ships" of far greater than dreadnought size, but this writer will leave you on your own in that regard.

TACTICS

Get your speed up, concentrate your fire, and use occasional evasive action to set those Last Minute shots of your enemies to go off prematurely. Don't be afraid to mix up your fleets. Try a dreadnought "aircraft carrier" with four or five fighter squads, with a cruiser and destroyer escort, or a plasma torp armed speedster to play a hit and run game.

Test yourself, against your friends/enemies, and against your computer. And Remember, for every great ship, there is a countership that will be able to successfully smash it. Or, at least, so goes the prevailing thought at the Alliance War College.

For every two designers, there are at least two, and more likely five or six, different viable designs. One friend of mine likes phasers that fire from arcs *1, 3, 6,* and *8,* and photon torps to cover his stern. Design your best four ship fleet and let CGW or SSI know about it. Perhaps a tournament could be forthcoming. Stand up, Commander, and be recognzied!

CONCLUSIONS

Although billed as an update of Warp Factor during its development, CB is, in truth, a completely new game with its own flavor and style. The speed of the game may encourage some 'arcaders' to get into strategic gaming, but if you're looking for a true arcade game, better look elsewhere.

CB is a tactical simulation, one which plays very smoothly and, as noted earlier, almost too quickly. The shipyard. options and the number of scenarios available will keep this one out and in use for a long time. In the meantime I look forward to the strategic galactic conquest game with CB as its combat resolution interface. ■

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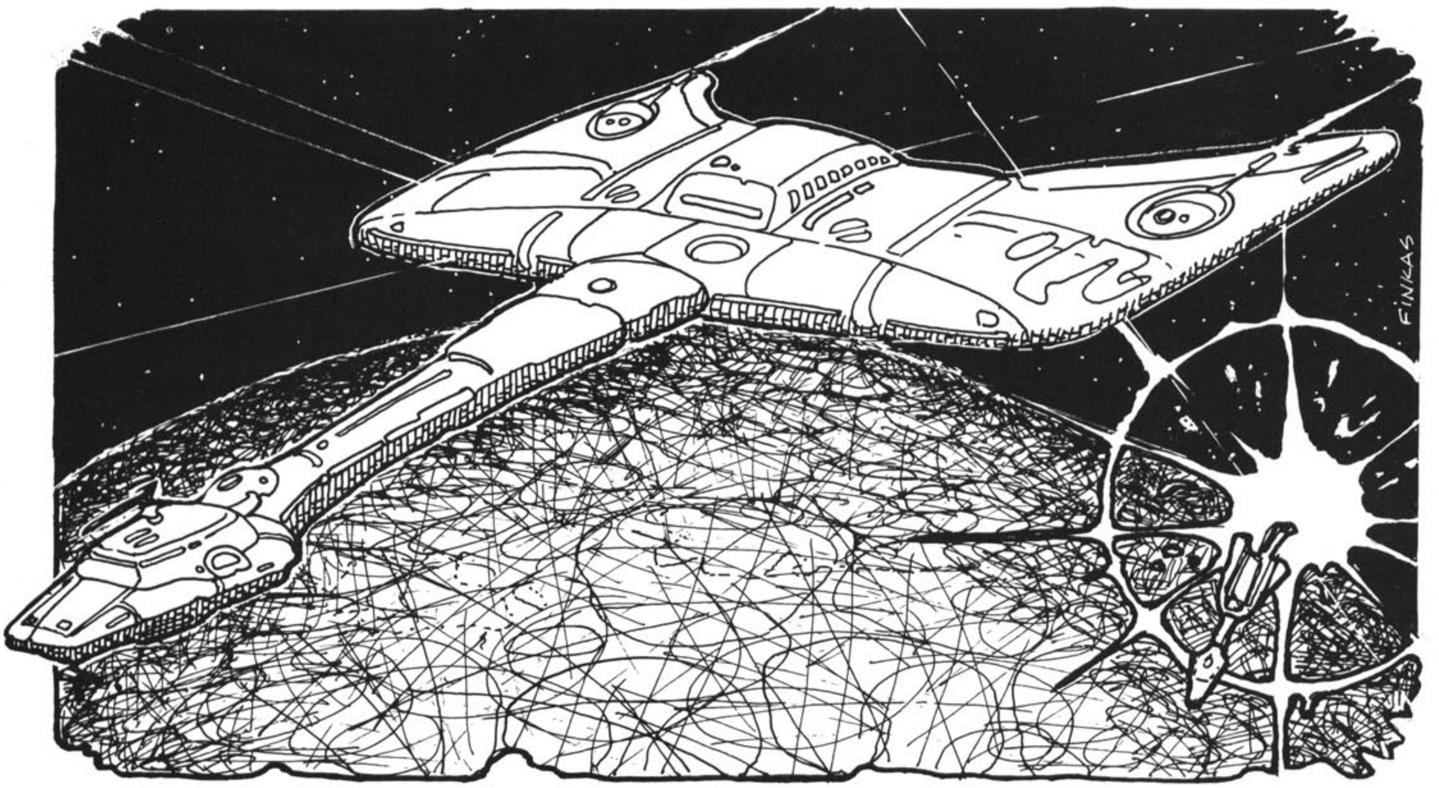
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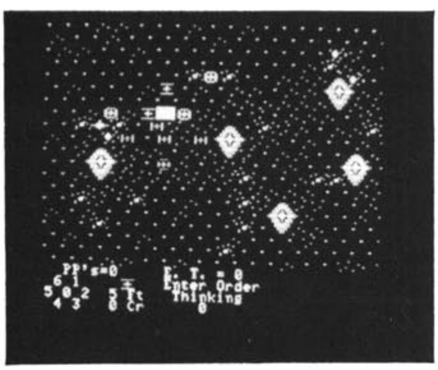
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S.E.U.I.S.: Strategy and Arcade Combined

Dick Richards





BASIC INFORMATION

NAME:	S.E.U.I.S
TYPE:	Strategy/Arcade
SYSTEM:	Apple II 48K
FORMAT:	Disk
# PLAYERS:	1 or 2
AUTHOR:	John Lyon
PRICE:	$39.95
PUBLISHER:	Strategic Simulations 465 Fairchild Dr., Suite 108 Mountain View, CA 94043

S.E.U.I.S. (Shoot 'Em Up In Space) is the first viable combination of a real strategic game and truly challenging arcade-type game that this writer has seen. You and your opponent, human or computer, battle for control of the *Ozgortian sector* of the galaxy in the 24th century. Some may remember from history books that ancient conflict between the kingdoms of *Northwold* and the *Far Reaches* in the Andromeda Galaxy, as chronicled in THE SHATTERED ALLIANCE (SSI 1981). SEUIS puts you in command of a 24th century fleet battling to either destroy your opponent's fleet or capture all of his production centers before he/she/it can do the same to you.

The Strategic game is played on a star map with each player moving squadrons before the countdown clock runs out, and when opposing squadrons meet in the same "hex", the scene changes to allow you to battle it out with the enemy in high-speed arcade-type combat.

THE FLEETS

Each player's fleet is composed of a varying number of squadrons which are individually depicted on the star map. The three types of squadrons (light, medium and heavy) are shown by three different symbols on the star map. The squadrons, however, can be of differing composition (more on this later) so you usually won't know *exactly* how tough the "bandits" really are.

Light fleets are composed of only fighters, medium fleets of fighters and cruisers, and heavy fleets of cruisers only. As one might expect, the light fleets are the fastest, while heavy fleets move rather slowly. . .but are very powerful.

There are three different levels of fighters (destroyers, escorts, and light fighters) and three levels of cruisers (light or heavy cruisers and battleships) and with the create-your-own game options you can vary the composition of your squadrons to suit yourself. For example, the standard light squadron #3 has three fighters, two *class d's* and one *class e*. But if you want five *class d's*, you can have them.

Each ship within a squadron has a given amount of *total energy available*, and a specified *midships value*. Energy is allocated between *weapons, shields,* and *rate-of-fire* at

the start of each combat phase, and can be different each time the ship joins battle. When your midships value reaches zero, the ship explodes!

I could go on for the next ten pages talking about the capacity to change parameters and create new game situations, but fortunately for you, I won't. Suffice it to say that you can do almost anything you want, including changing total energy available, midships, production point, frequency of production, composition of the squadrons, size of the fleet, timing of reinforcements, and, of course, the star map on which the battle will occur.

Another nice feature is that four different levels of solitaire complexability are presented; from beginner to ace. My first game *Scenario Two, The Great Battle*, was, of course, at beginner level. My startegy was superb, and I easily manuevered one of my medium squadrons into a vicious attack on a (supposedly) defenseless enemy light squadron and got slaughtered. In fact, my first few games usually resulted in throwing down the paddles in disgust, snapping off the computer, and deciding that "this dumb game is impossible!"

Well, it isn't impossible, just challenging. So, you might try cheating. The change parameters options make this quite possible. I simply changed the parameters of one fleet to make it 20% to 30% stronger than my proposed opponent. Beef up the midships and total energy available for this 'super' fleet, and even the production points of the resource centers, and then go back and smash the (now Puny) enemy.

After a while you'll notice that you're winning every battle. So then go back to a balanced battle, and when you start winning at that level, then give the computer the super team. When the time comes that you are again winning, move up to intermediate level and take the super team again. This should help you avoid the rather unpleasant experience of losing every battle. When you get to a point that you are beating the computer at the ace level while using the inferior team, write in and let SSI know, because game designer, John Lyon, says he rarely beats the Ace level in even battle!

THE STAR MAP

The strategic map has five types of "terrain." Largest and normally most productive are the *Bright Stars*, then *Major Stars, Minor Stars, Small Stars*, and *Single Stars*. All except single stars require a reduction in speed by squadrons which pass through them, and the first three all add production points to your resources at varying time interval.

Six different star maps are presented for your fighting pleasure, three of which are used in the existing scenarios and three additional ones for use in building your own games. At the start of the game, stars and systems controlled by the left side (purple ships) are indicated in blue, while those controlled by the right side (green ships) are orange. As you conquer enemy stars, or they conquer yours, the colors change to reflect their new loyalties.

PRODUCTION POINTS

As mentioned above. Bright, Major, and Minor stars all act as resource centers; adding production points (PP'S) to your total. As the total PP's available reach a level which would allow you to build additional squadrons, these are produced and placed on the map (somewhat randomly) at one of your resource stars. As the weaker squadrons cost less to produce, you will usually end up with more light squadrons than anything else. But have patience, medium and heavy squadrons are produced from time to time.

COMBAT

When you and your opponent both have ships in the same "hex", combat will occur. First, you will have to allocate your total energy to weapons, shields, and rate-of-fire (I'd suggest the maximum to weapons, then to shields, and whatever's left over to rate-of-fire. At this point you choose a champion to fight your opponen'ts champion. And from there on, you battle on the arcade screen with your beam weapon (I call it a laser) and automatic guided missiles. The missiles are computer controlled for both sides and cause the bulk of the damage in the battle. But, the crucial and normally deciding factor is your laser. Once fired, it needs to recharge before you can fire again, and I'd suggest you hold your fire for the really good shots. Many times I have fired (and missed!) only to end up with a great shot only seconds later which I couldn't take because my laser was uncharged.

Another alternative in combat is the battle royal, where all your ships fight at once. This is quite chaotic, as the computer controls all of the enemy's ships and all of your ships except one. You change which of your ships you control through the keyboard — and GOOD LUCK! There is also a 200 production point penalty (-100 to you, +100 to the enemy) for violating the rules of civilized warfare if you elect the battle royal.

During individual combat the bar graphs to the right of the screen reflect the remaining midships values of the combatants, while during the battle royal the graphs reflect total midships of all ships in the battle.

OPTIONS AT START

As in virtually all of SSI's games, you can play either side against the computer; against a human opponent; or even watch the machine play against itself. You can also, change the countdown clock to speed up the computer, or give yourself or an inexperienced opponent more time to think. Another feature, which my wife will love, is the optional turn the sound off, so the exciting sound effects don't keep everyone in the house awake until three A.M. while you defend the galaxy.

Finally, since the combat section is indeed challenging, there is an option to allow you to practice combat before beginning a real game.

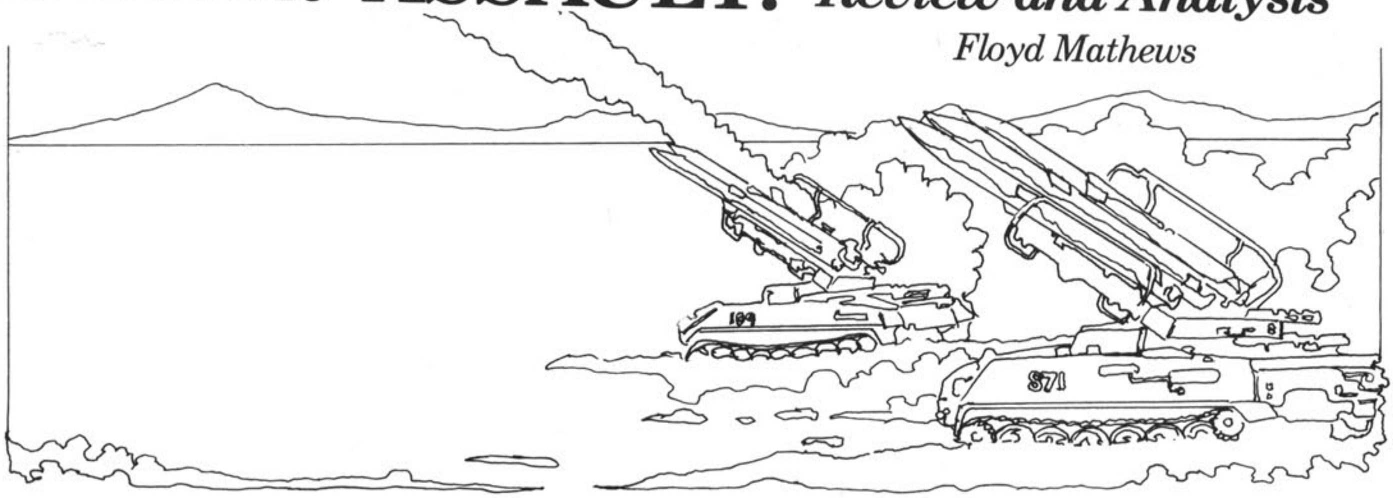
CONCLUSIONS

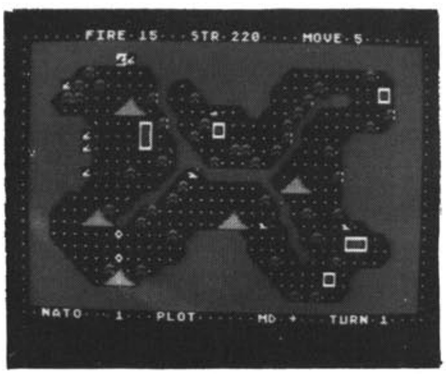
The biggest fault I've found with combination arcade-strategy games is that they are usually primarily one or the other. You will either find that the strategy game is too simple or conversely, the arcade game is too slow. SEUIS seems to avoid this dichotomy. The strategy game could easily stand alone with a combat resolution system similar to SHATTERED ALLIANCE, while the arcade type combat is easily as challenging — probably more so — then many of the space battle games with which we are all familiar. The combination is highly payable, and the overall feel of the game is quite positive. With the wide opportunity to change parameters and create your own games, this game will maintain its attraction over the long haul.

I can think of only one real negative to the game. . .its name. Whether you call it SEUIS, or Shoot 'Em Up In Space, it sounds dim. But, if every game I buy plays as well and offers as much flexibility, then I really don't care what it's called.

ARMOR ASSAULT: *Review and Analysis*

Floyd Mathews





BASIC INFORMATION

NAME:	**Armor Assault:**
TYPE:	**Wargame**
SYSTEM:	**Atari 400/800 40k**
FORMAT:	**Disk**
# PLAYERS:	**1 or 2**
AUTHOR:	**John Weber**
PUBLISHER:	**Epyx**

Armor Assault by Automated Simulations is a very simple but enjoyable game for one or two players. It simulates hypothetical tactical level armor warfare between NATO and Soviet forces in the very near future. Although it is not a very realistic simulation, this is an entertaining game and the program has many interesting features which could be used in other types of computer wargames.

In addition to the twelve scenarios included in the game, the program allows you to create maps and design tanks for new scenarios. Each player uses a joystick to secretly plot orders for his units and then the program displays simultaneous movement and fire for all units. Each player commands up to six vehicles, such as tanks, trucks and jeeps. There are no air, artillery or infantry units. You can also set mines. There are several kinds of terrain which have different movement costs, may block lines of fire, or provide some defensive cover for your units.

There are two types of fire: direct and opportunity. You can plot only one type of fire for each of your units each turn. Direct fire occurs after all units have finished moving. opportunity fire occurs during the movement phase. You simply plot an opportunity fire line from your unit, and it will shoot at any unit which crosses or moves along the line.

Opportunity fire is a realistic way to simulate simultaneous movement and fire in a tactical game, and I hope more game designers will use it in the future. My only complaint about opportunity fire in this game is that a unit will fire many rounds during the same movement phase if several targets cross or advance along its line of fire, and this represents an unrealistically high rate of fire. You can partially eliminate this problem by designing new units with lower structural strength as discussed.

A typical game lasts about one hour. Most scenarios have a geographic victory objective which one player must seize or destroy within a certain number of turns. Victory can be very much in doubt right up until the final turn, and there can be very exciting finishes. Most tanks have weaker armor on their sides and rear than in front, so it is feasible to try flanking maneuvers or set up ambushes. The situation can change quickly if one player runs low on ammunition, or blunders into a minefield or ambush.

You must be careful in plotting your orders, because the joystick control subroutine is very delicate and there is no command for correcting a mistaken entry.

My only major criticism of this game is that it is not a very realistic simulation of modern armor warfare. If it purported to be a science fiction game, I would have no criticism at all. If you don't care about realism, then this won't bother you. If you do prefer more realism, I have some suggestions for designing new scenarios which are more realistic. First, the standard tank designs in the game can take as many as ten hits to be *gradually* destroyed. But in real life an armor-piercing round will either glance off the target with no damage, or penetrate with results too gruesome to describe. Even a hit in the tread area will either ricchochet, or cripple the vehicle, making it a sitting duck. You can better simulate this "first-penetration-equals-kill" aspect by reducing the structural strength of the standard tanks to about 30. This also makes a faster more exciting scenario due to the possibility of sudden death. Second, modern sighting devices can get first round hits at extreme long range, therefore, most of the field maps portray combat at absurdly short ranges. I suggest that you use or modify the urban map, as it is more realistic for tanks to engage at short range in a street-fighting action. I also recommend raising the accuracy of all units to .53, as no one could miss at these ranges. Third, only tanks, trucks and jeeps are provided, while it is unlikely that these vehicles would be committed to an assault without infantry support, or without encountering enemy anti-tank gun emplace-

Continued on p. 45

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the learning game

by Bob Proctor

If we examine the learning process in very general terms, it breaks down into two major areas of study. *Instructional Theory* is the "how we learn" part of it and *Motivational Theory* is the "why we learn" part of it. Almost every researcher who ventures an opinion agrees that motivation is the more important factor. We humans just don't learn very well unless we WANT to.

An example that illustrates this — because we've all known or been one — is the child who just doesn't seem to read very well in school. There's no physical or emotional problem, just a lack of motivation. There comes a day when this child gets his (or her) hands on a comic book. ZAP! POW! Bright colors! Interesting monsters or whatever — for the first time in his life this kid WANTS to read, and does.

This is what I call the *comic-book syndrome.* Of course the incentive could come from almost anywhere; it could be a Hardy Boys mystery or Robert Louis Stevenson. Nowadays, it might well be a desire to read the rules for Dungeons and Dragons or some other game that "everyone is playing."

The point, of course, is that results are not achieved until there is sufficient motivation. I am writing this column because I feel strongly that games can be an important motivator in education. My intent here is to review educational games for home computers; along the way talking about a number of issues in both the instructional and motivational areas. I certainly plan to give you some of my own opinions, but my major goal is to give you enough information to make intelligent choices when buying games. I am reminded of a certain movie critic whose reviews always give me a good idea of whether or not I'll like the movie — I almost always disagree with him! If I can do as well for you, I'll be happy.

What do I mean by "educational game"? The concept is certainly fuzzy since every game teaches something, even if it's just eye-hand coordination. The designers intent is an important factor but sometimes hard to judge. When Dan Bunten designed CARTELS & CUTTHROATS, he was obviously thinking of teaching business concepts but was he also thinking of teaching math? When the original ADVENTURE was taking shape was anyone thinking of teaching children about problem-solving or risk analysis? In short, by "educational game" I mean ANY game; I don't want to restrict the scope of this column. I will emphasize games which aren't likely to be covered elsewhere in CGW, games which supplement formal education, and games for younger age groups. From time to time, however, I'd like to examine the educational value of games which aren't generally considered educational. I may even look at educational programs that are not considered games IF there is a point to be made.

To begin, here's a look at two games which improve typing skills. MASTERTYPE which has been a best-seller for a year now and, TYPE ATTACK, a new entry in the field.

NAME:	**Mastertype**
TYPE:	**Typing game**
SYSTEM:	**Apple II, II +, or Atari 800**
FORMAT:	**Diskette**
# PLAYERS:	**1**
AUTHOR:	**Bruce Zweig**
PRICE:	**$39.95**
PUBLISHER:	**Lightning Software P.O. Box 11725 Palo Alto, CA 94306**

NAME:	**Type Attack**
TYPE:	**Typing game**
SYSTEM:	**Apple II or Apple II +**
FORMAT:	**Diskette (DOS 3.3)**
# PLAYERS:	**1**
AUTHORS:	**Jim Hauser and Ernie Brock**
PRICE:	**$39.95**
PUBLISHER:	**Sirius Software 10364 Rockingham Drive Sacramento, CA 95827**

Wow, two typing games for the same price, both with lessons graduated from learning individual keys to full words, numbers and special characters. Both allow you to create your own lessons to practice whatever you want to practice. With so many similarities, most people probably won't want both, so let's look at the differencs.

There are two major differences between these programs. One is the way in which lessons are presented and the other is the way the screen looks. These factors combine to give the games a different feel, and this will determine which of the two you will prefer. The first is probably the most important difference, but let's start with the graphics, as this will let me explain how the games are played.

In MASTERTYPE, you have a "ship" in the center of the screen. Things to type — letters, words, numbers, symbols — appear in each of the four corners with a little missile, satellite or fireball near them. These objects begin to creep toward your ship; when you type a "word" a beam of energy shoots toward the corresponding corner, either destroying the object or knocking it back to the corner. If you destroy it, a new word will appear in that corner. If you only knock it back, you must type the same word again until the object is destroyed. Of course, if you spend too much time on one corner, a missile from another direction will sneak in and blow up. You have shields to protect you from these nasties, so the first one will not damage the ship but it will destroy the shield that protects that quadrant. If you take another hit from that direction the game is over.

Each lesson is 40 "words" (in the early lessons they are just single letters) and is broken down into four

waves often, to give you a chance to rest. At the end of the game, whether you win or get blown up, you will see a summary page that gives you a score, your typing speed in words per minute, the total number of mistakes you made and an evaluation. This last may tell you you're doing pretty well and need to increase speed. it may simply encourage you to keep trying. It is never discouraging or abusive. There is a menu which lets you change speed, lesson or turn the sound on or off between games. Changing lessons requires rebooting the program and takes over 30 seconds, a long time to wait when you're eager to get on with it.

TYPE ATTACK uses a format that will be very familiar to SPACE INVADERS fans. Your laser cannons at the bottom of the screen blast away at letters and words on the screen. You don't have to aim, just type; you keep playing until you use up your 100 points of energy.

Each lesson is divided into two parts. In *Character Attack*, you're faced with a phalanx of letters which creep back and forth and down just like the aliens in SPACE INVADERS. Only the letters at the bottoms of the columns can be shot; if you type a letter that isn't vulnerable, you lose a point of energy. If a letter reaches the bottom of the screen, you lose 35 points! In *Word Attack*, words using the letters of all lessons up to the current one appears at the right edge of the screen traveling to the left. You must type them and press the space bar. If they make it to the left edge, they wrap around to the right to give you another chance but you also lose more energy. Your typing speed is shown by a thermometer on the left edge of the screen and your remaining energy on a similar scale on the right. You can change the speed or the beginning lesson from a menu between games.

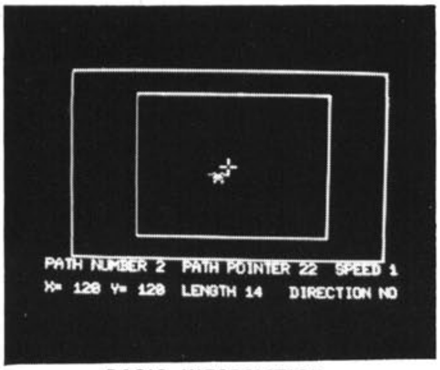
The big difference is that in MASTERTYPE, when you are done with a lesson the game is over whereas TYPE ATTACK will automatically load the next lesson and continue (unless you hit CTRL-R to repeat a lesson). This means that your score, in the former, is a score for one lesson only and can't be compared with the score from a different lesson. In the latter, your score is a score for the whole game and can be compared to any other. The highest scores in MASTERTYPE will come from doing Lesson one in Beginner mode. It can be discouraging to move up to harder and harder lessons and have your progress rewarded by lower and lower scores. You must remember that progress is its own reward as well as the object of the exercise. In TYPE ATTACK, on the other hand, the highest scores will be obtained by starting with Lesson one and progressing through as many lessons as you can. The faster the speed and the fewer the mistakes, the higher you score.

This difference is important. As the desire to get a high score is what distinguishes these games from a program like TYPING TUTOR, it's best to have a high score indicate high overall proficiency; not just skill with one small portion. For this reason — and because of the excellent animation and nice game features (like a pause function and sound toggle) that are typical of Sirius' games — I think TYPE ATTACK is a better game. For typing practice, however, especially if you want to create your own lesson(s) and practice them over and over, MASTERTYPE would be better.

That's all for the first of, hopefully, many columns to come. Please feel free to send in the name of any games or programs which you feel are appropriate to review in upcoming segments of *The Learning Game*. ■

THE ARCADE MACHINE

john f. besnard



BASIC INFORMATION

NAME:	The Arcade Machine
TYPE:	Arcade Game Generator
SYSTEM:	Apple II (48K)
FORMAT:	Double-sided Disk
# PLAYERS:	1 or 2
AUTHORS:	Chris Jochumson and Doug Carlston
PRICE:	$44.95 or $59.95 (I've seen both)
PUBLISHER:	Broderbund Software 1938 Fourth St. San Rafael, CA 94901 (415) 456-6424

Being an artist is a dream of most human beings; a dream that is very seldom turned into reality. The problem is not that, as individuals, we have no artistic talent. Everyone has their share. The problem lies in the medium of expression. Oil painting is an additive medium, while marble is a subtractive one. It is virtually impossible to chip a piece of marble back on to a statue, just as it is very hard to remove paint once it has been applied. What we all needed was an interactive medium. The computer, in this consideration, is a natural. It takes no more effort to display a *pixel* of color than to delete it — that is, of course, assuming you have an advanced knowledge of *bit mapped, byte packed, refresh graphics* techniques.

If these techniques are not second nature to you, then Chris Jochumson and Doug Carlston are coming to your rescue. Their ARCADE MACHINE not only makes it easy to create pleasing artistic shapes, but allows non-programmers to animate those shapes and put them into arcade game situations. Don't we all have at least one or two suggestions for improvements on even the most polished game products? THE ARCADE MACHINE (TAM) makes changing a game virtually as easy as changing your mind. Put in a feature or take one out, then instantly see the results. If marble or canvas were as forgiving, Michelangelo could have painted the Sistene Chapel in a week!

If you can dream up a Masterpiece, you can probably make a reasonable approximation of it using TAM. As an example, I created a recognizable copy of the arcade game 'Phoenix' in about three evenings. Called *Another City in Arizona*, it has all five different scenarios presented on the original. It's a flagrant rip-off and, thus, could never be sold. But, it's great to play it for myself; keeping my quarters for my other little vices.

TAM is a menu-driven piece of software that creates a table-driven game. The menu approach makes it relatively easy to use the product. Users are given the choice of: Creating shapes (up to 24 different ones), Creating paths for the shapes to follow (up to 50), and Creating a suitable background on which to play.

The user also has control of game options for each of the five different levels available. Having a 'moving stars' backdrop for your new space game is as simple as entering your response to three entries in the level tables; *STAR SPEED, STAR DENSITY* and *STAR MOVEMENT*. The table-driven nature of the game itself allows the user instant feedback on the result of his changes — no assemblies or compiles are required. It's amazing how easy and natural it is to adapt to this feature. A user will soon be much more cavalier in his approach to the computer. Rather than doing an extensive amount of preplanning, as is required in normal software creation, you just boot-up TAM, stick some feature in and see how it looks. If you like it, you can leave it. If not, fixing it is usually only two or three keystrokes away.

Partial creations may also be stored on a separate data disk. Each data disk can be used to store up to five different games. And, if you want to use the creatures from one game in another, each of the separate tables maintained by TAM can be retrieved separately. Just try doing that with oil paints!

TAM makes use of the nature of Apple graphics; its rather BEZARE (sic) color scheme and byte mapping to allow the user to easily create seven versions of each shape (that's like having 168 different shapes at your disposal). As a shape moves from left to right on the screen, each of the seven versions is displayed in turn. Wheels can be made to 'spin' and little legs can really strut. One set of shapes can be commanded to *mutate* or transform itself into another (again with just a few keystrokes). Hatching eggs into space monsters is a natural here.

Our very handy feature of TAM allows points to be assigned to each of the shapes in play. The player gets points for shapes with a positive score and loses points for those that are negative. He can't shoot, but must not touch those shapes with a zero score. Each round ends when all of the positive score pieces have been eliminated. You can thus make it impossible to end a game, if you keep a positive valued piece out of view.

TAM plays on a virtual board that is about twice as big as the Apple screen. This allows shapes to wait off screen until their cue to emerge. And, when they do emerge, they do so one bit at a time. This feature may not sound like much, but it looks great and is just an example of the care put into this product. Naturally, the game has a *control-S* sound toggle and a pause feature. It also has a single step feature that's great for debugging paths and can be an

Continued on p. 45


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The Atari Arena

Allen Doum

BASIC INFORMATION

NAME:	Protector II
TYPE:	Arcade
SYSTEM:	Atari 400/800 32k
FORMAT:	Disk or Tape
# PLAYERS:	1
AUTHOR:	Mike Potter
PUBLISHER:	Synapse Software 5327 Jacuzzi St., Suite I Richmond, CA 94804

NAME:	Claim Jumper
TYPE:	Arcade
SYSTEM:	Atari 400/800 16k
FORMAT:	Disk or Tape
# PLAYERS:	1 or 2
AUTHOR:	G. Ghang
PUBLISHER:	Synapse Software 5327 Jacuzzi St., Suite I Richmond, CA 94804

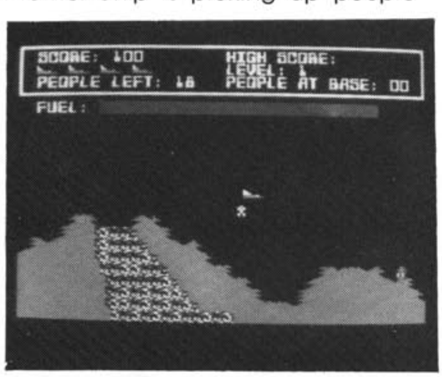
NAME:	Picnic Paranoia
TYPE:	Arcade
SYSTEM:	Atari 400/800 16k
FORMAT:	Disk or Tape
# PLAYERS:	1 or 2
AUTHOR:	Russ Segal
PUBLISHER:	Synapse Software 5327 Jacuzzi St., Suite I Richmond, CA 94804

NAME:	Tax Dodge
TYPE:	Maze-Chase
SYSTEM:	Atari 400/800 32k
FORMAT:	Disk
# PLAYERS:	1
AUTHOR:	Jon Freeman and Ann Westfall
PUBLISHER:	Island Graphics Box Z Bethel Island, CA 94511

Have you ever wondered about some of the strange things you have to do in some games? Eating ghosts? Shooting mushrooms? Destroying fuel tanks in order to be refueled? the players of PROTECTOR II, for instance, have to use their ship, a *needle-fighter*, to rescue people from a city attacked by aliens. As the aliens drop the friendly population, one by one, into a nearby volcano, the player "hooks" his charges to the bottom of his ship and flies them over the volcano to another city that the aliens aren't bothering to attack. Once all the people have been deposited, one way or the other, the volcano errupts, sending a stream of lava toward the second city. At this point, the player will have to rescue the people again taking them this time to a safe fort. Why not take them there in the first place? Silly question. Because the fort has been behind a force field until the volcano erupted, of course.

Protector II, like many programs with "silly" scenarios, has the saving grace of being *enjoyable* — a trait which has saved many an otherwise ludicous game. The play-action of flying a "needlefighter" is similar to the arcade game DEFENDER, but the goals (described above) and hazards are quite different.

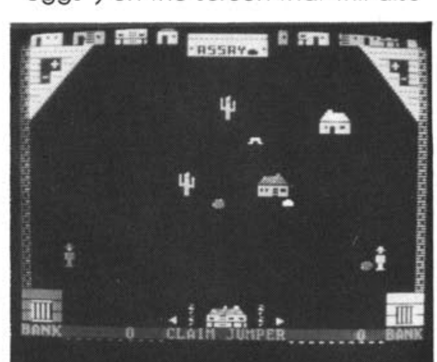
The hazards come in several forms: *Xytonic Pulse-trackers* (mines), the indigenous *Chompers* (bouncing mines), *meteoroids* (falling mines), *rocket bases*, and the *Laser Fields* of the Straak (ground batteries). No explanation is provided as to why all of the ground batteries are helping the aliens. All the while the Fraxullan Mother Ship is picking up people with its' tractor beam (which can kill you) and dropping them into Dragonmaw, the Volcano of Death (which can also kill you when it periodically errupts). These hazards have arbitrary effects. For instance, you may fly through the buildings of the cities, but not at your own base. Some of the hazards may be shot at any time, some only at certain times and several cannot be shot at all.



The graphics are good, and the sound, animation and scrolling are very well done. Play may begin with either three or five ships at any of six difficulty levels —although I doubt that anyone is expected to play at the higher levels. Even at the lower levels, PROTECTOR II moves fast enough that most players won't have time to realize that what they're doing doesn't make much sense.

The CLAIM JUMPER scenario looks, at first glance, to be more sensible. Two players each control a "cow-boy" A gold bar appears randomly on the screen, and if either cowboy takes it to the assay office at the top of the screen, the goal vanishes and a ten dollar bill appears nearby. Each player has his own bank in which to deposit the money, and after ten bills have been deposited, the player receives a house worth 20,000 points. A second house is worth 30,000 additional points but, since the game ends at 25,000, that seems inflationary. The two cowboys can shoot each other, the victim going to one of two hospitals in the upper corners of the screen.

What makes CLAIM JUMPER strange are the snakes and tumbleweeds. The snakes follow one cowboy, the tumbleweeds the other. If caught, a cowboy will be paralyzed for a few seconds. However, if he shoots whatever is chasing him, it is converted into whatever chases his opponent: snakes into tumbleweeds; tumbleweeds into snakes. Each cowboy can also leave "seeds" (or "eggs") on the screen that will also



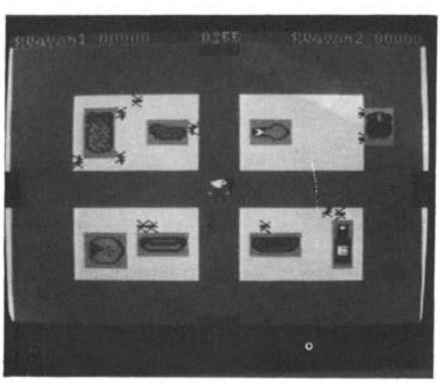
convert his persuers. A player scores 100 points for each snake/tumbleweed converted by any method.

Game variations include a headstart of $50 already deposited, and the necessity of buying bullets with the money in addition to the houses. Either or both variations can apply to either or both players. A solitare game (with two levels of difficulty) has one cowboy trying to shoot all of the snakes and tumbleweeds, while having to buy bullets. The solitaire game, however, is just practice. Both are easy enough to beat that, once a player learns to shoot properly, there isn't much of a challenge.

The graphics and animation in CLAIM JUMPER are very good but, while there are sound cues for most game actions, the sounds are not very imaginative. There aren't many interactively competitive two player arcade-style games, so it is nice to see a company like Synapse release a game like CLAIM JUMPER which fills that need so nicely.

Also by Synapse is PICNIC PARANOIA. Here, the player is *George*, guarding four full picnic tables which armed only with a fly-swatter and an occasional can of bug spray.

Ants soon crawl on-screen and in character, attempt to carry the food away. Spiders that lay delaying webs show up on round two, and can sting George, paralyzing him, if the player isn't careful. A flying wasp, which also stings, appears at random. Points are awarded for swatting any of these marauders. Each round lasts a minute and a half and, at the end of each round, bonus points are awarded for any remaining food. As soon as all food is pushed off of the screen, or a round ends with no food still on any of the tables, the game ends.



Food pushed off the screen is gone for good, although George can push food back onto the tables. When 5,000 points are scored, and at 10,000 point intervals after that, you get a can of bug spray that will kill all of the bugs on the screen, but *no points are received for doing so.* Timing the use of the spray is the most important "strategic" decision the player has.

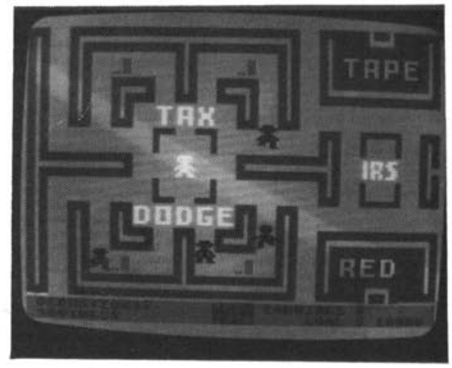
Either one or two players (alternately) may start at any of the first five rounds. There is a "night" option, but since whatever the insects are walking on is illuminated (fire-ants?), it is actually easier to play than the "day" game, and not as pleasing graphically.

Animation and graphics are excellent. George, the wasp, and a multitude of ants all move smoothly around the screen, though the spiders suffer by comparison. Sound cues for walking, being stung, the wasp, and for food being pushed are all well done. The music that accompanies the copywrite screen is great, even by Synapse standards.

As whimsical as this game is, it actually makes more sense than any of the games reviewed so far. Admittedly, it is not very realistic to have three ants carry a bottle of ketchup, but it has the edge on turning tumbleweeds into snakes by shooting them.

How's this for a scenario: You are a *Taxpayer* who, during a year, scurries around collecting income. You are harrassed by *Taxers,* who if they can catch you will carry some of your income back to the IRS. You may accumulate deductions to reduce your losses, but there is no defense against inflation; "the cruelist tax of all". If all of this sounds depressingly familiar, imagine yourself playing a kind of PAC-MAN variant and you will end up with TAX DODGE.

In TAX DODGE, each round lasts at most just over two minutes and represents one tax year. A small calendar at the bottom of the screen shows the passage of the months, along with your earnings, annual goal, accumulated deductions and savings. As you move through a maze you must pass over what looks like stacks of coins (income). "DEDUCTIONS" and "INFLATION" are spelled out in large letters along some of the paths, and each time you cross a letter it will take effect. (each deduction can only be taken



once, of course). Other special features are spelled out this way and only appear in certain years. These include an accountant that can get you a tax shelter and a lawyer who can help you in court. They also include an occasional audit and a tax court that are strickly bad news.

Graphicly, the game does not resemble PAC-MAN at all. Both the Taxpayer and the Taxers are figures of men. The maze is larger than the screen, and will scroll to keep the Taxpayer visible. The scrolling is under partial control of the player, so he or she can attempt to keep an eye on the Taxers. The scrolling is done very well, and the animation and graphics are adequate, but nothing special.

Each year is more difficult, with a higher goal and greedier Taxers. If the player does not reach the goal, the game ends. If the goal is reached, the money goes into permanent savings and does not effect further play. Savings are, of course, your score and the high score is saved from game to game.

As a game, TAX DODGE starts easy but becomes quite difficult starting with the fourth year. From there on out, players are going to have to work out patterns and, tricks to stay in the game. My only real complaint is that it seems much harder to "corner" in this game than in most games — even with practice. TAX DODGE is a good, solid game that makes the most of its' theme and somewhat overdone play mechanics.

While this column is edited by Allen Doum, we will gladly print worthwhile contributions from others. Send contributions to:

ATARI EDITOR
c/o COMPUTER GAMING WORLD

That about wraps it up for this time. I will leave you with one of the most important questions to face mankind: What is the value of a single life? Usually about 10,000 points. ■

REAL WORLD GAMING

Dan Bunten



MODEL DEVELOPMENT

"Nothing is certain (except death and taxes)".

The quote above would be the first law of simulation games if there were laws governing this field. In games that mimic the real world, we must include uncertainty in the outcomes. The data collection phase of game development (discussed last time) was not an attempt to remove uncertainty. It was an attempt to discover the type of uncertainty that occurs in the field of interest for your game. Good data collection should answer some questions about the system you wish to simulate.

How often do things happen? Very few things happen all the time. In general, things happen with a certain probability or *frequency*. The things that happen are called *outcomes*. Data collection used to create a simulation game must determine what the outcomes are for certain occurrences. It must also give some measure of the frequency for each possible outcome. For instance, in a football game an offensive pass play could be considered to have four outcomes: the pass could be caught; it could be intercepted; the quarterback could be trapped in the backfield; or a penalty could be called. (There are other outcomes of lower significance that are ignored in this example). Using ths list of outcomes, we would need to determine the probability of each one happening in order to complete the data collection.

What quantity of things occur? This is another question that data collection must answer before we can continue to the next phase in game design — model creation. The probability outcomes mentioned previously are important, but there are places where the question is not "will it happen?" but "how much will happen?". Using the football example from above, this question of "how much" would be important if the pass was completed. How many yards would the play gain? In most real-life situations, amounts are just as uncertain as are outcomes. Included in the last installment of this column was a discussion of normal distributions (or *bell shaped curves*). For quantitive outcomes that fit this type of curve, all you need is an average and a standard deviation to describe your data. Another type of quantitative distribution often used in games is called the *uniform distribution*. This type is appropriate where quantities are equally likely to happen over an entire range. Data collection to generate this type of distribution consists of simply finding the upper and lower limits of the outcomes.

So far, data collection should have answered the questions *"How often?"* and *"How much?"*, but more information is needed. There are often conditions that affect or even determine the probabilities and quantities of outcomes. Understanding these conditions and influences is essential to the creation of a model of the real world. This final question could be phrased as "*How do things affect other things* (probabilities and quantities)?". The answer to this question is often vague. it's not like counting the number of times a certain thing happens out of a total number of observations (frequency). The mathematical techniques used to determine how (and how much) things influence other things are regression *analysis* and *analysis of variance*. A discussion of the specifics using these approaches is outside the scope of this series. However, for the purpose of a game, it is often sufficient to use a mixture of 'trial and error' and intuition. (A fancy name for this technique is *heuristic modeling*). Using the football example again, the factors that affect the outcome of a passing play are the *type of pass pattern*, the *defensive* alignment and the *quality of the* players on both sides. To reflect the differences caused by the pass pattern and the defensive setup, we could limit the number of options available to both sides. For each combination of offensive play against defensive play, there could be different probabilities and quantities. The play choices would then be the main determinant in creating the outcome. Your data collection to simulate this factor would consist of observing and recording the results for play combinations.

The other factor which impacts upon the outcome of a football play is the quality of the players. To discover the amount of influence the quality of a team has on a passing play you could use a combination of intuition and "rules of thumb". In "Computer Quarterback" I used a formula like this to adjust the probability and quantity of the outcome:

```
Factor  =  ((QB*2+RCVR*2+
           OFLN) /5)
           (( DFLN+LNBKR+SFTY*
           SFTY* 2)/4)
```

Where:

QB	=	Quarterback quality (in the range .7 to 1.3)
RCVR	=	Receiver quality
OFLN	=	Offensive line quality
DFLN	=	Defensive line quality
LNBKR	=	Linebacker quality
SFTY	=	Safety (deep) back quality

The factor arrived at via this calculation was then multiplied by the probability of completion for the play

Continued on p. 45


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REVIEW ROAD

GREETINGS, TOURISTS! This month, our journey to TRS-80 Adventure is going to start on REVIEW ROAD, a street which, hopefully, will become well-worn with use. The buildings in this neighborhood are varied. Some are nothing more than shrink-wrapped pieces of cardboard supporting a cassette tape cartridge, while others are magnificent structures: large, sturdy boxes with dazzling art work hinting at the excitement and thrills inside. But just as you can't tell a book by its cover, or a car by its paint job, you can't tell a game by its package. So to reduce the confusion and increase the value of your computer gaming dollar, we're going inside to see what's behind the packaging. We'll explore from the attic to the basement and from the kitchen to the hall closet to give you the information you need to get the most bang for your buck!

BASIC INFORMATION

NAME:	**Time Runner, Apple Panic, Mad Mines, Black Hole, Babel Terror**
TYPE:	**Arcade Action**
SYSTEM:	**TRS-80 MODS. I & III**
FORMAT:	**Disk and Tape**
# PLAYERS:	**1 or 2**
AUTHOR:	**Yves Lempereur**
PRICE:	**Tape — $19.95 (Exc. Time Runner: $24.95) Disk — $24.95**
PUBLISHER:	**Funsoft 28611 Canwood St. Agoura, CA 91301**

Our first stop is a group of five arcade style games, all from the same company, Funsoft, of Agoura, California. Unfortunately, when reviewing a group of new games from one company and one author, it's hard to avoid the feeling that they are all somewhat alike. Programmers develop certain routines, input methods and screen displays that work well for them. Naturally, they will use these same techniques in many of their products, just as a novelist develops a certain identifiable style which appears in most of his writing. But reading five books in a row by the same author may produce the feeling that you are reading the same book five times. So it is with computer software, and so it is, to a degree, with these five games.

The games are *Time Runner, Apple Panic, Mad Mines, The Black Hole,* and *Babel Terror.* They all have certain features in common, so let's examine those first. All are available in either cassette or disk format and will run on either a model I or model II TRS—80. The cassette versions require 16k, while the disks need 32k. A nice touch to the package is that the back cover contains photos of the screen displays of each game, so that you know, in advance, what kind of graphics you can expect. Each game has some desirable features which demonstrate the programmer's awareness of consumer needs. Each can be played with either joy stick or arrow-key movement inputs. This helps avoid keyboard callouses. There is also a demonstration mode for each game, which initiates itself if a few minutes elapse without keyboard input. Each one also has sound available, although the package ad copy is a little misleading about the sound capabilities. All five contain the usual pows, zings and zaps of alien warfare. Two programs, "Apple Panic" and "Time Runner", also provide a melodious musical salute between games. But, the cover description of "Apple Panic" indicates a star burst proclaiming the inclusion of voice as well as music. Here is where ad-writer enthusiasm exceeded programmer capabilities. The only actual voice reproduction is a very scratchy, barely-intelligible *Apple Panic,* pronounced during the opening credits. *Babel Terror* has a similar voice introduction, but the package designer must have had second thoughts by then, as voice is not mentioned in the advertising copy for it. Don't grab for these if you're looking for full vocal support of the play action. You'll be disappointed. One final feature, available on all but "The Black Hole," is a routine which maintains a permanent record of the top ten scores.

Time Runner is laid out on a checker board playing area containing 20 rectangular boxes. objective is to scoot around the edges of the boxes, staking out each one as your own territory. As each box is circled, its interior is shaded in and your score is increased. Your video screen alter-ego is a button-nosed little character who appears to be a close relative of Leo Christopherson's DUELING DROID. Part of the family resemblance is in his eyes, which roam about, pointing in the direction he's moving, and give him a generally mischievous appearance. His nose is just a small square in the middle of his face, but it has a value of its own. It marks the pivot point of his body. Be sure to have it lined up with the box edges as you negotiate corners. If you don't, you may find yourself vainly punching arrow keys but not moving because you're out of alignment with the new box edge. All of his activity is complicated by defenders who scurry around, trying to stop him. One contact with a defender and zappo. . . That's it for our friend! He does have one advantage though. A touch of the space bar freezes the little critters in position for a few moments while the hero escapes. Like time-outs in football though, you only get three of these escapes in a game. When the entire checkerboard pattern is encircled, your score is calculated based on your elapsed time. Higher levels provide more defenders and different values for each box. These values begin to decrease the moment you begin to circle a box, providing the added challenge of having to immediately complete a box once you start it, otherwise it may be worthless when you return to it later.

Time Runner may hold out some challenge to nimble-fingered whiz kids, but in my book it only rates about a 5 out of a possible 10 for arcade games.

After playing Time Runner, *Apple Panic* creats a deja-vu, I've-been-here-before, feeling. It uses the same arrow key or joystick input for movement, has the same hero, and the same group of crazed defenders chasing the hero. The major difference is that the screen display represents a vertical surface rather than horizontal in "Apple Panic", the hero climbs vertical ladders to five levels of brick floors. He digs holes in the floors and then waits for a defender critter to fall into the hole. When that happens, he rushes to the scene and jumps up and down on the defender's head, causing him to fall through the hole to his doom. On my scale of 1 to 10, "Apple Panic" gets a 4.

Mad Mines is a "Galaxian" variant. A line is drawn across the screen about 1/3 of the way down from the top. This represents a protective force field. Above this line, space mines roam back and forth as in the typical "Invader-Galaxian" type game, you have a cannon which you move horizontally across the bottom of the screen. Shooting at the mines disturbs the force field and allows the mines to come screaming down upon your cannon in attack waves. If you destroy the complete initial waves, higher levels place the protective line lower and lower, allowing less time to react to each succeeding attack. The originality is pretty low here, so *Mad Mines* also gets a 4.

The Black Hole has more originality than Mad Mines and also the added advantage of having three phases to the game. Each phase has its own separate screen display. The player controls a single space ship which moves horizontally across the bottom of the screen. The first phase propels the ship through a long, ever-narrowing tunnel. Hurtling down the tunnel toward him, are increasing numbers of projectiles. To navigate the tunnel, he must dodge or destroy these projectiles while avoiding contact with the walls. As a last resort, he may deploy a protective shield to safeguard himself from the missiles. The shield should be employed sparingly however, as its' availability is limited.

The second phase of *Black Hole* is a form of BREAK-OUT. After emerging from the tunnel, the space ship is confronted by a wall protecting. . . Guess Who!. . . another of the little defender critters! To get to him, you must blast your way through the wall before your time runs out, avoiding occasional dropping bombs in the process. If you make it, you enter the third phase, which requires an attack on the bottom of a large mother ship, similar to the final state of the arcade game PHOENIX.

One of the drawbacks of *Black Hole* is that you receive no score unless you succeed in negotiating all three phases and finally dispatch the "Head Critter" inside the mother

ship. Anything short of this simply ends the game and you start all over again. it's either all or nothing, so there's no way of comparing skill levels.

A couple of interesting notes: when you first boot up *Black Hole*, you are given the option of reading the introductory scenario in either English or French. Very chic! After the introduction, the game automatically goes into a demonstration mode. To begin the playing mode you must press "Enter", an obviousness that is not mentioned in the instructions and which escaped my notice till I had spent 1/2 hour banging keys trying to get the game started.

Black Hole is just an average arcade game but considering the variation provided by the three separate phases I would rate it a 6.5 out of 10.

The final game from Funsoft is a maze called *Babel Terror*. The printed instructions indicate that you are a knight returning to your castle from the crusades, and that your objective is to find 10 crosses located somewhere in the maze. But the instructions written into the program itself refer to you as a "ship", through the passageways. Periodically, you encounter "babels" and other monsters which can spell your doom. Fortunately, you can be protected! If you pass over one of the 10 "Crosses"... or "Stars", which are your objectives, you gain temporary immunity from your foes. You can also gain fleeting invisibility by quickly pressing the space bar when a monster is heading in your direction. Of course, you have a limited number of opportunities to acquire invisibility. I encountered some difficulty with this. Sometimes my invisibility worked and sometimes it didn't. Occasionally I was simply shown a view of the total maze and then immediately zapped by the monster I was trying to avoid. I'm not sure whether I missed something in the instructions or if this is a bug in my program copy. In either case, I gave *Babel Terror* a 6 out of 10.

Continuing down the block on Review Road, there are three more neatly packaged disks. These are all from Computer Shack in Pontiac, Michigan. The titles are *Demon Speed, Jovian* and *Cyborg*. All are written for the models I and III TRS-80, and like the previous group, all are packaged in colorful folders, have a good assortment of sound effects, save high scores to disk and allow use of a joystick.

BASIC INFORMATION

NAME:	**Demon Seed, Jovian, Cyborg**
TYPE:	**Arcade Action**
SYSTEM:	**TRS-80 Mods. I & III**
FORMAT:	**Disk & Tape**
# PLAYERS:	**1 or 2**
AUTHOR:	**Bill Dunlevy**
PRICE:	**$20.00**
PUBLISHER:	**Computer Shack 1691 Eason St. Pontiac, MI 48054**

Demon Seed is a rather direct copy of the arcade quarter-grabber PHOENIX. It begins like many other games of this genre, with the enemy stacked above, and the player's artillery scooting back and forth below, trying to pick them off. This time, it's waves of small birds which are attacking your firing position. If you survive two waves of birds, you are then faced with a group of circling eggs which hatch into ugly predators with large wing spans. These relentless birds of prey swoop down with a very realistic chirping sound. If your finger dexterity is anything like mine, these ill-tempered vultures will probably peck you to extinction before you ever reach the final, "Mother Ship" stage of th game. Although the concept is not original, it is well executed, with fine graphics and interesting sound. I rate it a 7 out of 10 overall.

The other two games from Computer Shack provide some entertaining originality. *Jovian* is a space adventure in which you manuever around a variety of moving and stationary space objects to attack an enemy space station. The screen display provides continuous scrolling, both vertically and horizontally, with very smooth, fast graphics. Only about 1/8 of space your universe is displayed at one time but pressing "break" gives you a quick view of the entire area. Your score is based on the elapsed time needed to shoot off all the pods on the enemy station. Success requires some strategic planning, quick thinking and adroit manuevering.

As you progress to higher levels of the game, the enemy stations grow larger, the amount of space junk increases and the total time available decreases. The game is definitely challenging and can become addictive I rate it a solid 8 out of 10.

The final game is *Cyborg*, described as a space-age gladiator testing arena. It has a large, open playing field dotted with a variety of obstacles and small mazes. As in Jovian, the monitor screen displays about 1/8 of the playing area at a time, but you have the option of obtaining brief, birds-eye views of the entire field. Movement to the edge of the screen produces fast, smooth scrolling in all four directions. Hidden among the obstacles and mazes are several target positions which your space sled must contact in order to score points. Protecting the targets are a large number of fixed and moving explosive mines and robots which will demolish you on contact.

The input controls of *Cyborg* are almost identical to Jovian, described earlier, except that the space bar firing control of "Jovian" becomes a defensive shield deployer in *Cyborg*. This shield gives you temporary immunity from the explosive devices. Using the shield has a disadvantage, however. It causes the maze and obstacle walls to become invisible until you hit the next target position. In the meantime you stumble along, bumping into walls and generally losing a lot of time. Time is important! Your total score is based on elapsed time. The longer you take to find all the targets, the lower your score will be. If you are too slow and careful, your turn will end before you can find and hit all the targets. There are two different playing areas which alternate as you progress to higher levels. There are twenty different levels with more explosive devices and faster movement speeds at each level.

Cyborg is an interesting, challenging arcade game with beautifully smooth action graphics. I give it a 7.5 out of 10.

POST OFFICE

That completes our trip down Review Road for this month. Let's drive over to the post office and pick up the mail. Quite a bit of correspondence has accumulated since the last column... Some with comments, some with requests,... all complimentary (thanks, gang!).

Larry Beatty, 1229 Porter Rd., Norfolk, VA 23511, is looking for good war and/or sports simulations for his TRS-80 Computer. Drop him a line if you can help. I'd appreciate a copy of any letters you send him. Also Larry, have you looked at "VC" from Avalon Hill? I understand that Avalon Hill will be supporting the Color Computer with more simulations.

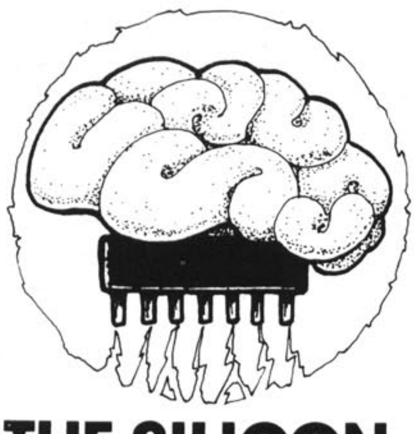
Dwight, from Torrance, CA is looking for an overlay program to reduce programming time and command entry on the Color Computer. If you know of such a program, drop me a note and I'll pass the information along.

To Frank in Colfax, Wash.: A TRS-80 version of "*Zork*" is available from Personal Software, 1330 Bordeaux Dr., Sunnyvale, CA 94086.

To Paul in Sacramento, CA: a TRS-80 Pac Man version called "Scarfman" is available from the Cornsoft Group, 6008 N. Keystone Ave., Indianapolis, IND. 46220 and I have just heard of a TRS-80 version of Donkey Kong available from Software Magic, Bramalea, Ont., Canada L6T 3S4, although I haven't reviewed a copy of it yet.

To Chris Farley in Utica, N.Y.: Nice to hear from you! I intend to run a group of reviews on adventure games in the near future! I'm checking on your question about TRS and will have an answer for you next issue.

This is the end of a long road for this issue. We'll see you again next time! Keep writing!



THE SILICON CEREBRUM

by Bruce Webster

INTRODUCTION

I hoped to have the long promised weighted map diagrams in this issue. It did not work out that way. Instead, I am going to talk about some simple techniques for helping programs to "learn". (Ed. — I am taking odds on whether the weighted map diagrams will appear in Brûce's next column.)

"Learning" ties in closely with some of the decision-making approaches that were covered in the last column. *Bayes decision theory* (BDT) needs information, about the likelihood of events or choice. The better the information, the more effective BDT is. In certain cases, though, that information may not be available until the game is actually being played. For example, the program might try to anticipate its opponent's moves. It can use "hard-wired" information to determine what move would be best in a given situation, based on the designer's analysis of the game. There's a problem, though. If the human opponent has different ideas about what is "best", the program will prepare for the wrong moves and may fall on its non-existent face.

To avoid this problem, the program needs to gather data during the game and use it to modify its decision making. In other words, it needs to learn as it goes along. Let's look at some ways in which a program can learn.

BASIC TECHNIQUES

Let's start with a very simple game, which we'll call WAR. In WAR, each side starts out with the same number of identical units. . .say, 100 mastodons each. WAR is fought in a series of rounds. During each round, both sides secretly pick one of three formations — line, column, or wedge — and reveal their choices simultaneously. If both pick the same formation, each loses one mastodon. Otherwise, line beats column, column beats wedge, and wedge beats line. The loser must eliminate a number of mastodons equal to the winner's current count minus his own current count. If that difference is less than or equal to zero, he loses one. Let's suppose that side A has 20 mastodons and side B has 15. If A loses, then he eliminates 1 mastodon, while if B loses, he must remove 5 mastodons. The first side to run out of mastodons loses. It's a bizarre game, admittedly, but it will serve our purposes.

Now let's design a program to play WAR against a human (or, if you wish, non-human) opponent. The easiest approach, of course, is to randomly pick a formation each round. This approach is more effective than you might think, especially for a simple game like this. If the human thinks the computer is planning its moves, then the results can be entertaining indeed. Also, the program will want to be able to choose randomly in situations where it can't decide what the human is going to do next. But let's examine how it might be able to decide.

The program's goal is to guess what formation the human will pick for the current round and to choose its own formation accordingly. To do this, it must gather information on how the human is playing. One simple approach is to keep track of how many times the human has chosen each formation. Once it has accumulated a sufficient number of choices (say, 10 or so), it then assumes that the next formation will be that chosen most often. For example, let's suppose that the human has chosen "line" 7 times, "column" 4 times, and "wedge" 6 times (we will represent such distributions as (L7,C4,W6)). The program would then assume that the human is going to pick "line" again and would select "wedge" as its formation. In case of a two-way tie, the program will pick the safest option. For example, if the human has chosen (L10,C10,W6), then the program would choose "line", since that would give it a tie if the human chooses "line" and a win if he chooses "column". In case of a three-way tie, such as (l10,C10,W10), the program would choose randomly.

There are some problems with this approach. If the human is aware of what the program is doing, he can simply keep track of his choices and force the computer into certain decisions. If he can get an initial edge, then he can probably "set up" the computer for some bad losses. So let's see how we can help the computer out.

We can make two changes without gathering any additional information. First, we can redefine a "tie" to mean a difference less than or equal to some value, which we'll call "E". If E equals 2, then (L12,C10,W6) would be a two-way tie, and (L15,C17,W16) would be a three-way tie. This will help to eliminate some (but not all) of the predictability of the computer.

Alternately, we can always pick randomly, but use the tally to bias the pick. For example, let's say that 20 rounds have been played, and that the human has picked (L10,C6,W4). We then convert each tally to a probability by multiplying it by 100 and dividing it by the number of rounds that have been played. This would give us (L=50%, C=30%, W=20%). This can then be converted to a set of ranges: (L=1 to 50,C=51 to 80,W=81 to 100). The program then generates a random number from 1 to 100 and matches it against the ranges. It assumes that the human will pick the corresponding formation and reacts accordingly.

SOME ENHANCEMENTS

Suppose we find the preceding methods just aren't good enough. How can we improve them? One of the simplest ways is to gather additional information. The program can note context and history as well as the actual choices. For example, we might keep track of the last 10 or 20 moves and look for patterns. Suppose the last 12 moves were (L,W,W,C,W,L,W,W,C,L,L,W=last choice). If we take the last two choices (L,W) and go back looking for that pattern, we find it occurring twice before. . .and at evenly spaced intervals! In both cases, the next choice was (W), so the program might weight its choices toward (W).

The player can note context by saving information about when the player made each choice. Suppose the current tally was (L15,C10,W8). The program would probably assume that the human would pick (L) as his next choice. Now let's assume that the computer has also kept track of whether the player won, lost, or tied on the previous move, and that the distribution is (L5/3/7,C2/8/0,W4/2/2).

Continued on p. 47



Okay, okay, so the first number trick in the first Micromagic column (see the last issue of COMPUTER GAMING WORLD) is nothing but the old " casting out nines". It still is a fun trick, isn't it?

For those not familiar with casting out nines, the idea in the trick is that a number and the sum of its digits both leave the same remainder when divided by 9. For instance, take the number 1148. The sum of its digits is 1+1+4+8 = 14. If you divide 1148 by 9 and 14 by 9, you will find that in both cases the remainder is 5. (Don't take my word for this! Check this!).

When you subtract the sum of the digits from the original number, the result must therefore be a multiple of 9 (that is, there is no remainder, or the remainder is 0). So, by the same reasoning, the sum of its digits must be a multiple of 9 as well. The computer program simply computed what the missing digit must be to make a multiple of 9.

For instance, continuing with 1148 as an example, if you subtract the sum of the digits, which in this case is 14, you get 1134. Notice that the sum of the digits is 9 (a multiple of 9). If you single out the digit 3, the other digits are 1, 1 and 4 which have a sum of 6. The computer program in the previous issue essentially instructs the computer to find what digit is needed to make the sum of all the digits a multiple of 9. In this case, a 3 would be needed.

ON TO SOMETHING NEW. . . .

This month I will offer a new program which has some element of strategy for you to discover. In the next issue I will offer one of my all-time favorite recreational mathematics problems (the first professional one I created) for readers as a programming challenge.

Our new program deals with a game called "Fifty". It is played either with one or two humans against the computer but, I have to warn you, the computer is a strong opponent! The object of the game is to be the first player to score a total of exactly 50. Players take turns choosing a whole number from 12 to 6 (like rolling a dice, but without the chance element involved). The computer keeps a running tally in both versions of the game. In the computer version, the computer gets to go first, and you may select whether the computer plays partially randomly or completely logically (unbeatable). Just so you get the idea, suppose two human players (called #1 and #2) play, with #1 picking a 3 first. If #2 now picks a 2, the computer will display the tally after #1's first turn as being 3, then it will display the tally after #2 goes as 5 (from 3+2), and this will continue. The program itself has a number of input error and other such checks, as well as full documentation. If the reader wishes to save some typing, he may omit those PRINT statements which are just instructions, but I recommend keeping them in for future reference.

Continued on p. 47

THE GAMING OF FIFTY — GENERIC PROGRAM LISTING

NOTE: TRS-80 Users-I have a slightly better version of the program for you. If you send me a self-addressed stamped envelope you may have a copy.

```
1 CLS:  REM CLEARS THE SCREEN ON TRS-80
3 DIM A(25):DIM B(25)
10 REM  -  THE GAME OF FIFTY
20 REM  -  DR. MICHAEL ECKER, SCRANTON, PA.
50 PRINT"     THE OBJECT OF THIS TWO-PLAYER GAME IS TO BE THE"
60 PRINT"     FIRST TO PRODUCE A TOTAL OF EXACTLY 50.  PLAYERS"
70 PRINT"     TAKE TURNS DURING EACH OF WHICH A NUMBER FROM 1 TO 6"
80 PRINT"     IS PICKED.  A RUNNING TOTAL IS KEPT BY THE COMPUTER."
90 PRINT:PRINT"     THE PLAYER WHO MAKES THE TOTAL EQUAL TO 50 WINS."
100 PRINT:PRINT"     Note: If you press only (ENTER) on turns after first,":PRINT
"     the computer enters your value from the last turn.":PRINT:PRINT:PRINT:PRINT
"     PRESS (ENTER) WHEN YOU ARE READY TO CONTINUE":INPUT X
101 CLS:PRINT "DO YOU WANT TO PLAY AGAINST THE COMPUTER?":PRINT"IF YES, TYPE AN
UPPER CASE C AND THEN PRESS (ENTER)":PRINT:PRINT "IF NOT, TYPE ANY OTHER KEY.":
PRINT:PRINT"IF YOU DON'T TYPE C, IT IS ASSUMED THAT TWO HUMANS ARE PLAYING."
102 INPUT M$:IF M$="C" THEN CLS:PRINT "THE MACHINE WILL PLAY AS PLAYER #1":PRINT
"DO YOU WANT THE MACHINE TO PLAY SOMEWHAT RANDOMLY":PRINT "(TYPE UPPER CASE R)?
...  OR LOGICALLY (TYPE UPPER CASE L)?":INPUT N$
105 CLS:PRINT "PLAYER #1",:PRINT "PLAYER #2",:PRINT "TOTAL"
107 I=0:T=0
108 I=I+1
110 IF M$="C" THEN GOTO 5000:ELSE INPUT "PLAYER #1 PICKS";A:C=A:GOSUB 2000:IF Q=
21 THEN 110 ELSE  A(I)=A
111 PRINT "      ";A(I),
112 T=T+A(I):PRINT " ",T:IF M$="C" AND T=50 THEN PRINT :PRINT "          SORRY, I
WIN THIS ONE!":FOR Z=1 TO 1000:NEXT Z:GOTO 1000
113 IF T=50 THEN PRINT:PRINT "          CONGRATULATIONS PLAYER #1 -- YOU WIN!
     ":FOR Z=1 TO 1000:NEXT Z:GOTO 1000
114 IF T)50 THEN 999
120 INPUT "PLAYER #2 PICKS";B:C=B:GOSUB 2000:IF Q=21 THEN 120 ELSE B(I)=B
121 PRINT "                 ",B(I),
122 T=T+B(I):PRINT T
123 IF T=50 THEN PRINT:PRINT "          CONGRATULATIONS PLAYER #2 - YOU WIN!":FOR
 Z=1 TO 1000:NEXT Z:GOTO 1000
124 IF T)50 THEN 999
130 GOTO 108
999 CLS:PRINT"YOU GOOFED. TOTAL IS NOW ";T:PRINT "(OVER 50).  START GAME AGAIN"
1000 END
2000 Q=0
2001 FOR K=1 TO 6
2010 IF C=K THEN Q=0 ELSE Q=Q+K
2020 NEXT K
2035 RETURN
5000 IF I=1 AND N$="L" THEN A=1:ELSE IF I=1 THEN A=RND(6)
5005 IF I=1 THEN A(1)=A:GOTO 111
5010 IF I)1 AND N$="L" THEN A=7-B(I-1):A(I)=A:GOTO 111
5020 IF I)1 AND N$="R" AND T+6(43 THEN A=RND(6):A(I)=A:ELSE IF I)1 AND N$="R"
AND T(43 THEN A=43-T:A(I)=A
5021 IF T)43 AND T(50 THEN A=50-T:A(I)=A:ELSE IF T=43 THEN A=RND(6):A(I)=A
5050 GOTO 111
```

Micro-Reviews

BASIC INFORMATION

NAME:	Flockland Island Crisis
TYPE:	ARCADE
SYSTEM:	Apple II 48K DOS 3.3
FORMAT:	Disk
# PLAYERS:	1
AUTHOR:	Kevin Bagley
PRICE:	$34.95
PUBLISHER:	Vital Information, Inc. 7899 Mastin Drive Overland Park, Kansas 66204



You've just lost 47,355 tons of island paradise to the offenders scattering 1586 sheep to the hills!!! You hit 150 out of 172 launched by the offenders. And it only took you 243 shots for a shooting average of 61%.

And that is the end of a game of FLOCKLAND ISLAND CRISIS. Depress any key and view the top five scores to see how you compare. This is an arcade game requiring much patience and concentration in addition to very good hand/eye coordination. The graphics in FLOCKLAND ISLAND CRISIS depict a narrow vertical island in the center of the screen which bears no resemblence to a well known South Atlantic island. In defense of your island you have an OID (defender) on each side which you can move upward or downward. You have a choice of dual or independently controlled OIDS. Independent control of OIDS net double points, however, the difficulty of play is considerably higher. Keyboard letters Q and *A* move the left OID upward and downward, *P* and *L* move the right OID. The space bar is used to fire the OID *QUOTONS* to destory the *OFFENDERS* which attack simulanteously from both sides. There are three levels of play to chose from, each progressively more difficult than the previous. Typically, a first time player would choose play level #1 and dual control of the OIDS. The offenders attack, one each, from the left and the right. Using the direction keys to position the OIDS relative to the offenders you then fire. Each depression of the space bar fires both OID QUOTONS in the dual control mode. Rarely do both OIDS line up to shoot at their respective offenders so, provided you hit one, the other is still attacking. Offenders, by the way, attempt to land on your island paradise and steal an invaluable commodity, *PETROLANOLINWEALTHURNIUM*. When the OFFENDERS have landed five ships, loaded up, and departed, the game is over. Whenever you fire the OID QUOTONS, in the dual mode the OIDS stop moving, thereby causing you to have to use the direction keys to renew their motion.

A running score is kept at the bottom of the screen and bonus points are given for each phase of play. Documentation indicates that no bonus points are given for level #1 play. However, our version gave a bonus on level one. After you have mastered the three levels of play using dual control of the OIDS, then you can advance to the independent control of OIDS and receive double points. No problem! Right? Wrong! With independent control you may set only one OID at a time to enounter the unlucky offender. I call this one unlucky, because, as this one is being shot at, the other offender is zeroing in on your turf unchallenged.

The graphics are alright, sound effects are reasoable and documentation is adequate except for the discrepency about bonus points. Another dimension in the play that would have accommodated a real master at hand/eye coordination would have been to have more than one offender attacking from each side simultaneously. But, all factors considered, if you enjoy demanding hand/eye coordination arcade games, then you will enjoy FLOCKLAND ISLAND CRISIS.

Stuart Gorrie

BASIC INFORMATION

NAME:	Night Mission
TYPE:	Pinball
SYSTEM:	Apple II/II+
FORMAT:	Disk
# PLAYERS:	1—4
AUTHOR:	Bruce Artwick
PRICE:	$29.95
PUBLISHER:	Sub Logic

NIGHT MISSION (NM), Sub Logic's addition to the video pinball craze, puts together the best features of the finest pinball games for the Apple. It has the smooth ball animation of *Budgeco* **RASTER BLASTER (RB)**, with the complex machine design of **DAVID'S MIDNIGHT MAGIC (DMM)** by Broderbund, and more features than the other two combined.

NM's graphics are incredibly smooth, especially considering the tremendously high ball speeds, DMM, on the other hand, has a tendency to *slide* the ball into a path when it shouldn't, or bounce it out before it should. While NM and RB don't have these problems, RB doesn't have nearly as well-designed a machine as either NM or DMM, making NM a strong condender for the best of Apple pinball games.

DMM has bumpers, roll-overs, multipe-ball play, tilt, up to four players, and a sound switch. NM contains all of these features, while it adds free games by high score or match, adjustable numbers of balls per game, ball speed, bumper impulse, flipper power, and over 30 others. The players can adjust the ball speed, tilt power, number of balls per game, bonus count rate, maximum bonus count, delay before new balls, bumper impulse, sound effects, and power in each flipper separately. The player also has options which make it easier to place the ball on certain paths, and easier to achieve multi-ball play. These are only the major adjustments. There are many others which make the game definitely the most *versatile* pinball game in history.

But, features are not only things that make NM stand out in the pinball field. The ball speed is incomparable to that of any other pinball game, computer or real.

While the speed can be set high, it can also be reached in normal play by hitting just a few bumpers in a row. Speed in a game can not be well described, so we will just say that it is definitely faster than anything you've probably seen. So great is the speed potential, that we advise you to hit your flippers before you think you should. This will usually result in perfect timing, as the ball can be quicker than the eye.

NM, as most pinball games, will not keep you constantly excited. It gets boring eventually, but it's sounds and speed keep you interested in it longer than most pinball games.

Mark Rhodes
Barry Gittleman

BASIC INFORMATION

NAME:	**Probe One: The Transmitter**
TYPE:	**Actionadventure with graphics**
SYSTEM:	**Atari 400/800 40k Basic Cartridge Paddles or Joystick**
FORMAT:	**Disk**
# PLAYERS:	**1**
AUTHOR:	**Lloyd D. Ollman, Jr.**
PRICE:	**$34.95**
PUBLISHER:	**Synergistic Software 830 North Riverside Drive Suite 201 Renton, Washington 98055 (206) 226-3216**

Probe One offers something for both the adventure and arcade-action enthusiast. In this science fiction based actionadventure, you explore room after room of a spacy colony research center. Your objective: find the transmitter and escape. As with most adventures, you go in compass directions, take, drop and use objects. In short, you try to figure out how to get from her to there without getting killed.

Menacing droids that wander into the rooms spice up the adventure. And, if you're not quick on the stick (joystick, that is), they will knock you unconscious and drag you back to the antechamber (square one). To make things a little more interesting, and a quite a bit more difficult, some of the droids are *invisible*. Invisible means they are the same color as the background, so that you can see them only when they pass in front of other objects.

The action part of the game consists of moving a gun horizontally across the bottom of the screen (just above the text window) and pressing trigger button to shoot at droids. These robots move onto the screen quickly, then pause briefly before bumping you back to the antechamber. Sound easy? Wait until you try to type, keep an eye out for invisible droids, maneuver, and shoot within a few seconds.

The game greets you with a well-done high-res graphic of a planetscape with animation of your ship landing on the planet's surface. Unfortunately, the quality of this graphic is not repeated. You then select the reaction time of the droids at which you'll be shooting. Selecting the slowest reaction time means you'll be able to quickly dispose of the visible droids and you'll stand a slim chance of knocking off the invisible ones. In fact, the game is probably best played with two cooperating players; one on keyboard and one on joystick (or paddles).

The game maker has included a feature that some adventurers find makes replays more interesting and that others find annoying: the locations of objects and the layout of the rooms changes slightly from game to game. This makes map making difficult if not useless. The challenge of exploration is increased even further because of the "gravshafts." You occasionally fall down de-activated gravshafts when going from one room to the next. An injury usually results.

You can get yourself killed in just a few basic ways. Three falls down a gravshaft will do it every time, as will enough successful attacks by the droids. There may be other ways to do yourself in but, if there are, I have yet to find them.

The game has what might seem as flaws; whether or not they are serious you should decide for yourself. First, after you die you must re-boot the entire program. This entails waiting for the nifty animation mentioned earlier, selecting a difficulty level, then waiting for the main program to load. Since there is no "save game" feature, be prepared to die and reload the program many times before you find the transmitter and escape.

Second, there appears to be no logic for using the objects, such as the translator or the crystals that you find. This means you don't do a lot of figuring things out as in some adventures. However, the author has seen to it that the number of combinations that you must test are few. This is because the game accepts only a limited number of commands. Type in a "g" and the word "Go" appears on the screen. Type "N", "North" appears. For other commands, such as "Take" and "Drop", the single letter command ("T" or "D") must be followed by the name of the object. This makes inputting commands easy.

Scoring for the game is based on the number of items you have in your possession at the end of the game (maximum four) and how many droids you kocked off. Additionally, you get one hundred points if you escape with the transmitter. (I never did, but I haven't given up. . .yet). Your score displays when you die or escape with the transmitter — there's no way to find out how you're doing until then. So, competition play for points is somewhat hampered.

Probe One will appeal most to adventurers who prefer path-finding to solving riddles and puzzles. It is billed as the first in a series of science fiction adventures. It's not a bad start, but like all else in this universe, it could have been done better.

David Stone

BASIC INFORMATION

NAME:	**Atari Games & Recreations**
TYPE:	**Book**
SUBJECT:	**Atari 400/800 game design**
AUTHOR:	**Herb Kohl & Others**
PUBLISHER:	**Reston Publishing**

Atari Games & Recreations is a well-planned book, covering game design on the Atari 400 and 800. It says "For beginners and advanced programmers too. . ." on the cover, although this might be too bold a statement, as the book seems specifically geared to those who know little more about programming than plugging the computer into the wall. But, in considering this book from the beginner's standpoint, *Games & Recreations* is one of the finer books out on Atari programming.

The book is clear in format and layout; using descriptive cartooning to accentuate the lessons it conveys. It begins by going over the basics of the Atari computer, including the editing functions, which the future gaming programmer will no doubt access frequently.

The random number function, the key to many programs, is fully explained, and how it may be used in combination with simple graphics to make various games. Guessing games, dice throwing, NIM, and secret codes are all examples of games that one can make using the basics of the Atari 400 or 800.

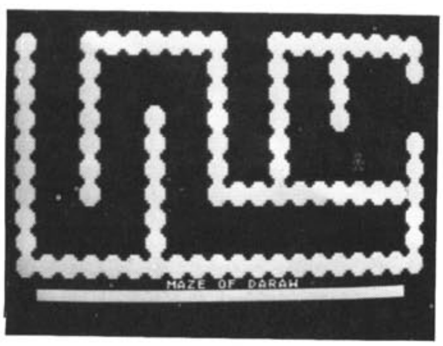
After the section entitled *The Atari Special*, the book begins to give more detailed information on game design, covering more advanced graphic routines and some excellent sounds (including your own siren, rocket launch, or explosion!). If the advanced programmer is to draw anything useful from this book, it would be from this section.

If I sound a bit negative on this publication, it is only because I had hoped for more information and a deeper more intricate, look at the gaming functions of the Atari microcomputer. In any case, the book is very well done and should prove to be a great asset to the beginner. For those with a more advanced programming background, skim through this one before you buy it.

Michael Cranford

BASIC INFORMATION

NAME:	Valley of the Kings
TYPE:	Action-adventure with graphics
SYSTEM:	Atari 400/800 48K Basic Cartridge joystick
FORMAT:	Disk
# PLAYERS:	1
AUTHOR:	T. M. Krishchan
PUBLISHER:	Dynacomp, Inc. 1427 Monroe Ave. Rochester, New York 14618



In this action-adventure, set in ancient Egypt, you guide an animated character through a maze of passages, picking up objects of value, and fight or maneuver around an array of guards, trolls, and other beasts. The documentation is well written. No one should have any trouble knowing what to do.

The adventure consists of three distinct phases. In the first phase, you pick up all the valuables and weapons that are to be found in the adventure. In the second phase, you travel through a maze of crossroads that double-back on themselves. And, in the third phase, you try to out-maneuver a couple of crazy critters that want to zapp you back to first room in phase three.

This game has a number of features that make it interesting and a little different from most adventures. First, the character that you move about has internal animation (even though he's only one color). Next, the game maker has devised a clever way of revealing clues and the identity of objects to you: just pass the character over the object and it's identity appears in the text window. The text-window message continues to re-appear, even if you don't want it to, until you are clear of the object. If the object is of some use or value, it is automatically added to your inventory.

Through a programming technique called "page-flipping", the rooms, passages, and other locations appear fully drawn. Just move your character off-left and blip! he's on the right side of the screen in a brand-new location. Of course, this also works with right, up and down.

The locations and characters do not adequately convey or carry the Egyptian theme of the adventure. For example, what's a troll on a bridge doing in Egypt? With a little more thought, the author could have used appropriate mythical characters. And, he could have decorated the borders of the rooms with Egyptian motifs, such as palm fronds and hieroglyphs. As is, there's nothing on-screen to really reinforce the theme of the Egyptian setting for the adventure.

The game begins by offering you an option to read a brief scenario summary. Once past that, your characer appears on a road with two signs; and you're off on your adventure! You read the signs, then move your character along the roadway, picking up coins, rings, and swords. Unlike most other adventures, there's no limit to how much you can carry. Also, many of the objects have point values (such as rings and coins) that will help your score at the end, but are of no particular use in the adventure.

Curiously, you gain all the points that contribute toward your score in the first phase of the adventure. From there on, you can only loose points. It's a matter of holding on to what you've got.

The author provides a number of tips for adventuring and scoring high. These include waiting and watching the movements of each villain before attempting to out maneuver him, never fighting with a villian unless told to do so (or you'll get zapped back to an earlier room) and, if the badguy gets too close, running out of the room.

You can see your inventory, your score, a listing of the characters in the adventure, or even light a match, under joystick control or by typing an appropriate letter. Accessing these features with the joystick is a little difficult. The game does not require you to type-in directions or commands and there's no "save-game" feature (nor is there a real need for one).

This is not, I repeat, *not* a heavyweight adventure. In fact, it can be completed in less than an hour. But this doesn't mean that it isn't fun. It is, and it's probably especially so for new or younger adventurers. Adventure conventions, such as finding matches (or some other light source) and using them to light dark passages, are not treated as puzzles. The instructions clearly tell you that you've got to find matches. And, at least one of the places where you use them is clearly labeled. However, since it's play-value is not derived from solving riddles and puzzles, but rather from maneuvering the on-screen character, there's plenty of fun to be had by replaying the adventure to try to beat your last score.

David Stone

PLEASE TAKE TIME TO FILL OUT READER INPUT DEVICE

ARCADE MACHINE (from p. 32)

interesting variation of a game itself. The player also has a choice of keyboard, paddle or joystick control for game play. Try playing a game, using the joystick, with a friend pressing the single-step key. You'll be in for some laughs.

TAM is flexible enough to allow non-game animation in addition to its many other features. A particularly difficult four level game could easily be culminated with an animated cartoon in level five celebrating a player's victory. Put all the pieces at zero score value, and the player need only sit and watch.

(Don't be confused by the numerous references to the player as it only takes four keystrokes to turn any game into a two player version.)

The software is certainly up to the high standards normally achieved by BRODERBUND. For as complex a product as this, it is virtually bug free. There were a few areas that I thought, at first, were definite glitches. But these proved to be well thought out features of the product. My initial confusion stemmed from the rather skimpy documentation provided. Thirty-eight pages is just not sufficient to clarify the entire program. The documentation could also be divided into a tutorial section and a reference section. A new user could then follow the tutorial and see the effects of his initial efforts. Once a person becomes experienced with the product, a well laid out reference section would display the meanings of the various table entries. Unfortunately, BRODERBUND tried to combine these two functions into one section.

The product itself provides a tremendous amount of power to the user. Try a few of the demo games supplied on the back of the disk to see the versatility potential of the product. I have a tough time keeping the kids away from 'PIZZA MAN' (What's a rhinocerous doing in a pizza parlor, anyway?) After you've 'fixed' these demos to your own standards, you're ready to create your own piece of art. In this age of standardization, it's comforting to know you can create a completely custom present for your own special computer friend. Yes, the Arcade Machine even allows you to create a quick load copy of your creation! Just imagine his face when he boots a disk that says "Happy Birthday Mike." ■

ARMOR ASSAULT (from p. 28)

ments. Fortunately, the unit design program gives you lots of options and, you should have no problem cooking up new infantry units with lots of structural strength, no armor, little movement and limited firepower. You can likewise design new anti-tank gun units with small structural strength, no armor, zero movement and large firepower. Fourth, you can better simulate the "fog of war" if you design your units and enter your orders in secret. In a real firefight it is, of course, very difficult to get precise information about the status and location of enemy units.

This game has many positive features, but it fails to recreate the "feel" of the most interesting feature of armor warfare — mobility. *Blitzkrieg* is a fluid tactic of maneuver, not costly frontal assault. Ideally, armor units should not be committed to such bloody assaults. Instead, they are best used in bypassing strong points to strike deep into rear areas cutting communications and supply lines, probing for and seizing weak spots, and encircling frontline enemy units. Unfortunately, the map in *Armor Assault* is only one screen large. This limited space is simply too small for realistic flanking and enveloping maneuvers. A multiple screen scrolling map, as in the classic **Eastern Front**, would be greatly preferable.

Ironically, the positive features of ARMOR ASSAULT do give a vivid "feel" for other kinds of combat. For example, if you design a new scenario using only infantry units as discussed above, you can develop a very realistic infantry street-fighting game reminiscent of World War II struggles in Stalingrad and Berlin. Even the unrealistic multiple opportunity fire and "vehicle collision" features of this game seem realistic in an infantry close assault situation.

Additionally, many features of this program are reminiscent of tactical Civil War naval engagements in the era of the first ironclads.

All factors considered, Armor Assault is a game with many good features, the best of which are the ability gives of during a wide range of senarios and the inclusion of simultaneous movement and opportunity fire. ■

REAL WORLD (from p. 36)

combination to get the final chance of success for a pass. A basic rule of human engineering was also used in this design. That rule says that in any field of human endeavor, the range of performance for almost all participants will fall within 30% of the average. Football players are no exception. The range of pass completion statistics for quarterback is from 70% to 130% of the overall average. So, if the average completion percentage for a certain pass is 55%, a great offensive team (with 1.30 rating in all the factors used in the formula above) against an average team (with 1.00 in all defensive categories) would complete the pass 71.5% of the time — 1.30 * 55%. Although unable to find any "hard data" to support (or oppose) the specific way I chose to handle team quality, I am satisfied with the way the game plays (and apparently so are a number of other people).

Thus, often data collection is much more than "number crunching". You may be called on to make judgments and guesses. In such cases, the more familiar you are with the system being simulated, the better will be your intuition concerning its functions.

If you can answer the three questions listed above (in all their various forms) with specific numeric answers then you have finished data collection. In addition, you have probably completed development of the model except for a few loose ends. All that is needed once you have the data collected is to reduce the numbers to formulas. For instance, if your observations indicate that a certain outcome occurred 15 times out of 17, then all you do is divide 15 by 17 to get the probability of that event. You should calculate the average and standard deviation for any quantitative data that seems to fit a "bell shaped" curve. List the highest and lowest value of any items that vary equally over a range. Finally, create equations that reflect the influence of one factor over another according to your best guess of how the system works.

Although this process is by no means trivial in a large scale system simulation, if you did a good job of the earlier steps in development (system definition and data collection) then creating a model is straight forward.

Next time we will cover programming your model. ■

Reader Input Device

OVERVIEW OF R.I.D. #5

There were 154 R.I.D.s turned in by press time for this issue. The breakdown of users was: Apple (58%): Atari (36%): Others (6%). As the more observant readers will note, in RID #5 we did not ask you what kind of computer you use. An oversight on our part. How then do we figure out the user breakdown? Except in a very few cases we could tell what machine each respondent used by the pattern of his evaluations (i.e. reviewed only Apple games, etc.) or from a statement of the respondent as to what machine he/she had.

For a game to be included in the results it must be evaluated by at least 20% of the respondents in the user groups(s) to which the game relates. 27 of the games from RID #5 had the necessary 20%+ play level.

The overall ratings were lower this issue than in any other. The mean score for RID #5 was 5.95. On RIDs #2, 3, 4 they were, in order 6.59, 6.17, 6.80. Anyone familiar with statistical analysis will quickly see that there are inherit difficulties in comparing the score of a game in one RID with that of a game in another RID. Since we must needs compare scores between RIDs to arrive at our CGW TOP 10 we need to be able to compare these scores. By figuring the mean score of a RID we can compare the score of a game in that RID with the mean. We can then adjust the score to an overall average score for all RIDs and thereby come up with a rating that can be compared in a fair manner to other games in other RIDs. For example a game rated at 6.20 in RID #4 (which sports a generous 6.80 average) should not be considered as strong a game as a game rated at 6.20 in RID #5 (with a stingy 5.95 average score). The adjusted score will rate the 6.20 game in RID #5 as a better game than the 6.20 game in RID #4.

In addition, games in the TOP 10 are automatically resubmitted for evaluation in the next RID. The adjusted score of a game in the TOP 10 will be an *average* of its *adjusted ratings* for the various RIDS in which it appears. In summary, the ratings listed for a game from now on will be adjusted to an overall standard. For anyone interested the standard will be 6.37 which is the mean of the means of the first four RIDs. This number will be the fixed mean for comparison purposes in future RIDs.

In our next issue we will give the adjusted scores for ALL the games from the various RIDs.

THE RANKINGS

The adjusted scores have had .42 points added to them to adjust them to the overall RID rating system. To compare a rating to that of a game in another RID you must adjust the score of past RIDs. RID #2 results — subtract .22 from all scores; RID #3 — add .20; RID #4 — subtract .43.

GAME	PUBLISHER	ADJUSTED RATING	% PLAYED
1. WIZARDRY	Sir-Tech	8.25	89
2. GUADALCANAL CAMPAIGN	SSI	7.67	64
3. KNIGHT OF DIAMONDS	Sir-Tech	7.42	64
4. CHOPLIFTER!	Broderbund	7.40	81
5. GALACTIC GLADIATORS	SSI	7.22	32
6. SHAMUS	Synapse	7.14	86
7. OLYMPIC DECATHLON	Microsoft	7.11	80
8. SOUTHERN COMMAND	SSI	7.03	73
9. ESCAPE/RUNGISTAN	Sirius	7.01	36
10. COSMIC BALANCE	SSI	6.97	42
11. PURSUIT OF GRAF SPEE	SSI	6.86	40
12. COMPUTER BASEBALL	SSI	6.84	56
13. LEGIONNAIRE	Avalon Hill	6.73	68
14. STAR MAZE	Sir-Tech	6.71	33
15. COMPUTER GIN RUMMY	Datamost	6.67	24
16. RENDEZVOUS	Edu-Ware	6.58	36
17. FROGGER	Sierra On-Line	6.17	44
18. S.E.U.I.S	SSI	5.79	31
19. SEAFOX	Broderbund	5.77	58
20. THE ARCADE MACHINE	Broderbund	5.76	40
21. ANDROMEDA CONQUEST	Avalon Hill	5.68	26
22. ATTACK ON EP-CYG-4	Bram	5.23	36
23. KING ARTHUR'S HEIR	Epyx	5.23	39
24. ESCAPE/VULCAN'S ISLE	Epyx	5.04	25
25. FRAZZLE	Muse	4.69	22
26. FORE!	Epyx	4.61	20
27. CRYPT OF THE UNDEAD	Epyx	4.57	43

COMPUTER GAMING WORLD TOP 10

Wizardry continues to dominate the TOP 10 chart, with the companion adventure, KNIGHTS OF DIAMONDS, just barely losing out to CHOPLIFTER! for the number 2 spot. SSI continues to dominate the list as a manufacturer with 4 titles. GUADALCANAL CAMPAIGN has taken little time in establishing itself as a TOP 10 resident. COMPUTER BASEBALL has slid several positions from the last accounting but will probably bounce back in the spring. The only new addition to the list is DEADLINE by Infocom. An Atari game, SHAMUS, just missed making it into the TOP 10. We'll give it another opportunity in RID #6.

COMPUTER GAMING WORLD TOP 10

THIS ISSUE	GAME	PUBLISHER	COMPOSITE RATING
1.	WIZARDRY	Sir-Tech	8.14
2.	CHOPLIFTER!	Broderbund	7.65
3.	KNIGHT OF DIAMONDS	Sir-Tech	7.64
4.	GUADALCANAL CAMPAIGN	SSI	7.51
5.	OLYMPIC DECATHLON	Microsoft	7.34
6.	SOUTHERN COMMAND	SSI	7.26
7.	COMPUTER BASEBALL	SSI	7.21
8.	GALACTIC GLADIATORS	SSI	7.18
9.	DEADLINE	Infocom	7.17
10.	RENDEZVOUS	Edu-Ware	7.16

R.I.D. #6 (Use business reply card provided)

GAMES

Rate the following games using a scale of 1 (terrible) to 9 (outstanding). In marking your evaluation be sure to consider the following aspects of the game: PRESENTATION (this includes such things as graphics, sound, packaging, documentation); GAME DESIGN (apart from the presentation, is the game well designed, playable, interesting?); LIFE (does the game wear well?).

Leave blank the box of any game which you have not played or have not played enough to have formed an opinion.

1. WIZARDRY (Sir-Tech)
2. CHOPLIFTER! (Broderbund)
3. KNIGHT of DIAMONDS (Sir-Tech)
4. GUADALCANAL CAMPAIGN (SSI)
5. OLYMPIC DECATHLON (Microsoft)
6. SOUTHERN COMMAND (SSI)
7. COMPUTER BASEBALL (SSI)
8. GALACTIC GLADIATORS (SSI)
9. DEADLINE (Infocom)
10. RENDEZVOUS (Edu-Ware)
11. SHAMUS (Synapse)
12. PROTECTOR II (Synapse)
13. CLAIM JUMPER (Synapse)
14. PICNIC PARANOIA (Synapse)
15. TAX DODGE (Island Graphics)
16. COSMIC BALANCE (SSI)
17. ULTIMA I (Sierra On-Line)
18. ULTIMA II (Sierra On-Line)
19. STARCROSS (Infocom)
20. ZORK: the Series (Infocom)
21. GERMANY 1985 (SSI)
22. BATTLE for NORMANDY (SSI)
23. EMPIRE I: World Builders (Edu-Ware)
24. PRISONER 2 (Edu-Ware)
25. A.E. (Broderbund)
26. ROBOTWAR (Muse)
27. AZTEC (Datamost)
28. HORSE RACING CLASSIC (Tazumi)
29. SEA DRAGON (Adventure Int'l)
30. STAR MAZE (Sir-Tech)
31. ALIEN (Avalon Hill)
32. LEGIONNAIRE (Avalon Hill)
33. ESCAPE/RUNGISTAN (Sirius)
34. WAY OUT (Sirius)

ARTICLES

Rate the following selected articles on a scale of 1 (terrible) to 9 (outstanding). If the article does not interest you enter "0".

35. TEST PILOT
36. COSMIC BALANCE: Review
37. S.E.U.I.S.: Review
38. THE ARCADE MACHINE: Game Generator
39. INSIDE THE INDUSTRY
40. TAKING A PEEK
41. THE ATARI ARENA
42. THE LEARNING GAME
43. ROUTE 80
44. INDEX

MISCELLANEOUS

45. What computer do you own? 1-Apple; 2-Atari; 3-TRS-80; 4-IBM-PC; 5-Other (Specify)
46. Which comes closest to describing how long you have had your computer? 1 - 3 months; 2 - 6 months; 3 - One year; 4 - Two years; 5 - Three or more years.
47. What is your age?
48. Approximately how many people will read or look at this copy of CGW?

A. What do you like best about CGW?

B. What do you like least about CGW?

C. Other comments.

SILICON (from p. 40)

Now we have three sets of figures to use. If the player won the previous round, we would use (L5,C2,W4); if he lost, (L3,C8,W2); and if he tied, (L7,C0,W2). Other tyes of context that the program could save include whether the player is ahead, behind, or even, and what he has chosen in the last 10 moves, 20 moves, etcetera.,

All of the "learning" that we've looked at so far is really just gathering statistics and using them to computer probabilities. Performance improves with a greater amount of data, so the program will want to save information from game to game and, probably, from session to session. Furthermore, the information should be keyed to different human players, that is, the program should save one set of data for me and another for you, since we probably play differently.

If we want to, we can introduce a higher level of learning. Let's say that the program produces three guesses each round using three different methods: total distribution (L,C,W); pattern matching; and won/lost/tied distribution. It assigns each method as initial weight of 100. It gets the three choices and selects the choice with the heaviest total weight. After the player enters his actual pick, the program checks each method to see if it was right or wrong. A method that made the right choice gets its weight increased by some amount; any that made wrong choice has its weight decreased. After a period of time, the program starts to "learn" which method (if any) works best. Again, we may want to save weights for each player to take advantage of individual tendencies.

CONCLUSION

I've described some very simple, statistic-based methods for program "learning". They provide a way for progr ams to improve their play against human opponents. They are based on learning to anticipate a given opponent and work best when information is saved and the same person plays over and over again. Properly implemented, they may help to avoid the quick boredom that often sets in when a player finds himself quickly mstering a given game. We'd be interested in hearing from any of you who have played around with these or other learning techniques. ■

MATHEMAGIC (from p. 41)

Why not type in the program listing and give the game a try? (Don't worry, I'll still be here when you come back!)

Having played, I wonder whether you noticed a strategy for winning. (No fair scrutinizing the program that closely!) Can you see how to win against another human opponent? Who has the natural advantage? How do you win?

Of course, there are other questions that can be asked, and perhaps some reader would like to explore some of these. For instance, what if you play for a larger sum as goal? What if you allow players to pick different numbers, say from 1 to 10? . . . or from 2 to 5 only? Who has the advantage? What is the strategy to use in thse cases?

As always, I would welcome hearing from readers who have programs which are superior to the ones used here, or interesting problems, comments, observations, generalizations, interesting special cases, some knowledge of the history of any of the problems used here — in short, anything that relates to the exciting world of recreational mathemagical microcomputing. Write to me directly:

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Viewmont Village
Scranton, PA 18508

Enjoy the mathemagic! I hope to hear from many of you very soon!
Mike ■

Dr. Michael W. Ecker is Assistant Professor of Mathematics at the Pennsylvania State University's Worthington Scranton Campus. When not playing with his TRS-80 Model 3, he is involved in other areas of recreational mathematics and problem solving as the Problem Editor of a collegiate mathematics journal and as a member of the Mathematical Association of America's Committee on High School Contests.

INDEX — — — VOLUMES ONE & TWO

The following index includes listing for the articles and games found in the one issue of Volume One (Nov.—Dec. 1981) through the sixth and last issue of Volume Two (Nov.—Dec. 1982). Each entry is accompanied by a line of information which includes (in order) the issue number, page number where the article/game can be found, a code as to the article type, and a READER INPUT DEVICE rating (RID) if the reference is to a game which has been rated in a RID by issue 2.6.

The article types give you a hint as to how much material you can expect to find on the listing in question. FA (feature article) means the subject is treated in a major article that is often more than one page long. MR (Micro Review) means the subject is treated in a small review usually from 400-600 words long. TP (Taking a peek) means the subject is mentioned in a short paragraph which gives a very brief description of the game and from time to time a comment on the quality of the game. Beginning with issue 2.5 photos of the screen often accompany the description of the product if it is a game. Prior to issue 2.6 TP was called "Initial Comments".

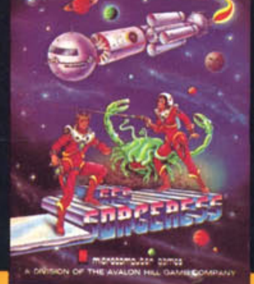
FA — Feature Article
MR — Micro Review
TP — Taking a Peek ("Initial Comments" prior to 2.6)
AA — Atari Arcade column (Now defunct)
MS — Miscellaneous



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